

Terrestrial Furbearer Biology & Management

Greg Yarrow, Professor of Wildlife Ecology, Extension Wildlife Specialist

Fact Sheet 28

Forestry and Natural Resources

Revised May 2009

Terrestrial or upland furbearers are called terrestrial because they require some drinking water but are not associated with water as a general habitat requirement. They include species like the opossum, red or gray fox, coyote, striped or spotted skunk, long-tailed weasel, and bobcat.

OPOSSUM

Everyone has heard the phrase “playing possum.” This phrase originates from the Virginia opossum’s (*Didelphis marsupialis*) habit of paralyzing



itself when it is gripped or shaken. Opossums use this reaction as a defense mechanism because they have relatively small brains and have not developed more advanced

anti-predator responses. The Virginia opossum is the only marsupial and member of the Didelphidae family in North America. Being a marsupial, the opossum carries her young in a pouch or on her back and is in essence a “moveable nest.” This has advantages because the opossum is not restricted to any one area and can move as available food supplies shift.

Opossum Characteristics

Opossums are about the size of a large house cat, measuring 25 to 33 inches in length and weighing between 6 to 13 pounds. Females are usually smaller than males. The opossum has a whitish to pale gray cone-shaped head with a white cheek bordered above with a gray or black eye stripe and ring. The back and sides are silver-gray with long, white guard hairs and black-tipped underfur. The ears are naked and black or white with pinkish tips.

The lower legs and feet are black, and the toes are white. The first toe on the hind foot is large and opposable, lacking a claw and a nail. The long tail is almost naked and scaly. Sex determination is easy because females have an external, fur-lined belly pouch called a marsupium. The teats are enclosed within this pouch.

The opossum is found in two discrete areas of North America. The eastern population is found from southern Ontario, Canada, south to Costa Rica, and east of a line extending from western Nebraska south to Texas. The western population is found along the Pacific coast from British Columbia south to Baja California. The opossum has been expanding its range in recent years. Using timbered river corridors, the opossum is now established throughout Colorado east of the Continental Divide. Opossums are found in every South Carolina county.

Habitat Needs

Opossums are found in every habitat type that exists within its range. They prefer woodlands and streams associated with woodlands. Opossums do quite well in a variety of habitats although the presence of open water is an important factor determining abundance and distribution. The opossum appears to be limited by the accessibility of water and the availability of denning sites. Food is not limiting except where the winter climate is sufficiently severe to hamper feeding.

Opossums are active at night, except during the winter when they may be observed during warm spells in the middle of the day. During the day they use a variety of den sites, including holes, stumps, crevices, hollow logs, or any other opening they can get into. During the winter they use ground burrows for dens. It is common to find abandoned squirrel nests enlarged by opossums and made into a suitable home.

Opossums are omnivorous and eat a wide variety of food items. Availability of an item determines its frequency in the opossum’s diet. Opossums appear to prefer insects, animal flesh, and fruits in that order. The list of insects eaten is impressive and long. Grasshoppers, beetles, crickets, squash bugs, and stink bugs are preferred. Opossums are great scavengers, and much of the bird and mammal flesh they eat is probably carrion (dead animals), especially when remains of cow, dog, domestic cat, raccoon, and skunk are found in scats (fecal material). Fruits are important during the summer and fall. Some of the more common fruits they eat are mulberries, pokeberries, persimmons, wild grapes, apples, ground cherries, and field corn.

Opossums are unique mammals in that they do not establish or defend a home range. They are nomadic wanderers, sleeping during the day and wandering at night. They have been known to wander more than two miles in a single night. Studies have shown they will use areas ranging in size from 10 to 40 acres. Opossum densities vary from 1 per

4 acres to 1 per 105 acres. Males, especially young males, appear to wander more than females.

Reproduction

The opossum breeding season runs from January through August in South Carolina. There are 2 distinct breeding periods. The first is a 6 to 7 week period of high breeding activity followed by a less intense period beginning 2 weeks after the end of the first period. Female cycles vary from 12 to 38 days although the female is in heat only 36 hours. Fertile matings occur during the first 12 hours. Females come into heat numerous times during the breeding cycle but breed only once each cycle.

Young opossums are born after a 12-day, 18-hour gestation period. The young move to the marsupium by grasping the female's belly hair. Once in the marsupium, the young either attach to a teat or die. The average number of teats for opossums is 13, but only 7 to 10 of these are functional. The number of functional teats determines litter size.

The maximum number of litters per female is 2. Newborn young are ½-inch long and weigh less than one ounce. Young opossums grow rapidly, and by the time they are weaned, at about 96 days of age, they measure 8 inches long and weigh about 6 ounces. Males are sexually mature at age 8½ months; whereas, females are sexually mature at 6 months of age.

The average life expectancy of an opossum in the wild is about 1¼ years. A totally new population of opossums is produced every 5 years. Opossums are eaten by a wide variety of predators, including dogs, coyotes, foxes, raccoons, hawks, owls, and large snakes. Dogs and great horned owls are the major predators. Roadkill is also a major cause of death.

There is little need for managing opossums, other than regulating the harvest, because opossums are abundant, have a high reproductive rate, and are very adaptable, living almost any place that is dry and protected from the weather or predators. Opossums are generally considered beneficial because they eat large amounts of insects, many of which are pests. Occasionally an individual will raid a hen house.

FOXES

Like many members of the dog family (*Canidae*), foxes are either beneficial or harmful, depending on your perspective. Many people believe foxes are harmful to game bird populations, although this claim is largely unsubstantiated. Others who think that foxes are major carriers of rabies believe foxes are a threat to humans and domestic livestock. Still others believe foxes are cunning, ruthless predators destroying valuable poultry. To this end, millions of dollars have been spent in the past on fox bounties in an effort to reduce their populations.

On the other hand, foxes are beneficial because they capture numerous mice, rodents, and other agricultural pest animals. They are also highly prized for their luxurious fur. Red foxes have been part of this country's legends, folklore, and literature since it was settled. Current information

shows that the red fox's lifestyle differs dramatically from what these sources have suggested.

Fox Characteristics

There are two fox species in South Carolina, the red fox (*Vulpes vulpes*) and the gray fox (*Urocyon cinereoargenteus*), and they are easily distinguished. The red fox is a small, slender, long-legged canine weighing between 6 and 15 pounds. Red foxes measure about 36 inches in length. They have a 12-inch tail that they use for balance and for warming the face while sleeping. The white tip on the red fox's tail distinguishes it from the gray fox. The upper body of a red fox is reddish-yellow and is darkest on the shoulders and back. The legs have black stockings. The belly and chin are white. The ears are often trimmed in black, and there are varying amounts of black on the tail. Several color phases of red fox are found, especially in colder regions. Red foxes may be black, silver, cross (dark cross on the shoulders), bastard (bluish gray), or Samson (no guard hairs).

The gray fox is slightly smaller than the red fox. It weighs 7 to 11 pounds and is 24 inches long plus a 12-inch tail. There is little color variation in gray foxes. They have a salt-and-pepper coat with buff underfur and rusty yellow sides, legs, feet, and backs of the ears. The reddish sides



Gray fox



Red fox

will occasionally cause the gray fox to be called a red fox. However, the primary color of the coat is gray, and the bushy tail has a conspicuous black stripe and black tip. The ears are also black-tipped.

There is some question whether the red fox is native to North America. Some believe the red fox was native in the northern part of this country but scarce or absent in most of the vast hardwood forests where gray foxes were common. Others believe the North American red fox originated from the European red fox, which was introduced into the southeastern U.S. around 1750. Nonetheless, the red fox is the most widely distributed carnivore in the world. It occurs throughout the U.S. and Canada. Red foxes are also native to Europe, Asia, and the Soviet Union. Red foxes have been introduced into Australia.

The gray fox occurs in much of eastern North America. Its range extends into Mexico, Central America, and Venezuela. Gray foxes are not found in mountainous areas in the northwestern U.S. and Canada, parts of the Great Plains, and eastern Central America. Both red and gray foxes are common across South Carolina.

Habitat Needs

Red foxes are very adaptable to a variety of habitat types. They prefer diverse habitats consisting of intermixed cropland, rolling farmland, brush, pastures, mixed hardwood forests, and edges of open areas that provide suitable hunting ground. They select areas where there is a diversity of habitats with plenty of edge. Red foxes may also inhabit suburban areas, particularly parks, golf courses, cemeteries, and large gardens. Red foxes are generally animals of open land and forest edges.

Gray foxes have similar habitat preferences in that they prefer a diversity of fields and woods rather than a large tract of homogeneous habitat. The basic difference between the two species is that gray foxes prefer woodlands more than red foxes do. Gray foxes like 200 to 300 acres of mixed hardwood forests, woodlands, and brush areas interspersed with open fields or croplands. Large dense stands of timber should have patches of open areas to be useful for gray foxes.

An adequate number of denning sites is important for good fox habitat. Red foxes may dig their own dens; however, they usually use an abandoned groundhog burrow. The same den may be used for generations. In some cases, red foxes prefer strip cover for den sites. Gray foxes use woodpiles, rocky outcrops, hollow trees, brushpiles, or rockpiles for dens.

Foxes are opportunistic carnivores but will feed on a wide variety of animal and plant material depending on what is available in a local area. Small mammals, birds, fruits, and insects comprise the bulk of the fox's diet. When rabbits and mice are plentiful, they make up the bulk of the red fox diet. Red foxes often store food in caches. Caching is necessary when their prey become scarce because they must feed on a regular basis.

Besides rabbits and mice, the red fox may eat squirrels, young opossums, raccoons, skunks, housecats, dogs, groundhogs, weasels, mink, muskrats, shrews, moles, songbirds, crows, quail, ducks, turkeys,

chickens, geese, woodcock, hawks, owls, bird eggs, turtles and their eggs, and insects. The red fox also eats plant foods, such as grasses, sedges, nuts, berries, pears, apples, grapes, and other fruits as well as corn, wheat, and many other grains.

Gray fox food habits are similar to but not as well-known as those of the red fox. Food availability plays a major role in what is eaten. Animal matter appears to be most important during the winter; whereas, insects and fruits are important summer foods. Cottontail rabbits and rodents are the usual dietary staples.

Home range for the red fox is the area used by a family unit consisting of a mated pair and the pups. The size of the home range for the red fox varies from 500 to 2,000 acres, and the territory used by red fox families is usually within one mile of the den. The den is the focal point of all activities until the end of the denning season. The male red fox assumes responsibility for territory defense. Scent markings play a role in defining the territory and reinforces the male's familiarity within its own home range.

Gray fox home ranges vary among areas ranging from 35 to more than 6,000 acres. The average is about 1 to 2 square miles. Home ranges are a function of prey availability, population density, and the diversity of habitats present.

Reproduction

The breeding season for the red fox occurs between December and February; whereas, the breeding season for the gray fox occurs between February and March. Breeding occurs earlier in the south and later in the north. The gestation period is between 51 and 54 days for red fox, 63 days for gray fox. One to 10 pups (the average is 5 for red fox, 4 for gray fox) are born April through May. Newly born pups remain at the den for the first month of life. Red fox parents may move the pups from one den to another as many as 3 times before the pups are 6 weeks old. Litters are sometimes split, with half the litter in one den and half in another. By the 12th week, the pups begin to explore different parts of their parents' home range during daylight hours. By mid-September or early October the young begin to disperse.

During the breeding season, the male and female remain in the territory until the pups are raised. The male defends the territory and brings food to the female until the pups can be left alone for short periods of time. Both the parents hunt for food, with the mother returning to nurse the pups during the day. Both parents remain with the pups until they leave in the fall.

Red and gray foxes live about 4 to 5 years in the wild. They are subject to a variety of mortality factors. The 3 most prevalent causes of death are hunting, trapping, and roadkills. Mange occurs in red fox populations and can result in death. Two viral diseases, rabies and distemper, can also result in death. Gray foxes appear to be especially vulnerable to canine distemper. When contracted, distemper is suspected to be nearly 100 percent fatal.

COYOTES

The word coyote (*Canis latrans*) means “barking dog” and is derived from the Aztec word coyote. Native Americans called the coyote the “song dog” because of its characteristic howls. Coyotes are beneficial in catching numerous mice, rats, and other agricultural pests. Although the ability of coyotes to control populations of mice and rats is not proven, they probably help moderate extreme fluctuations in prey populations. Many people also enjoy seeing coyotes and listening to the call of the song dog.

Coyotes can be predators of domestic sheep. It has been estimated that the federal government spend \$8 million annually to control coyotes, and individual states spend up to \$1 million each per year for coyote control. Studies have shown that producers who use good animal husbandry techniques, such as fencing, guardian dogs, and corralling at night can reduce domestic livestock losses by as much as 90 percent.

Coyote Characteristics

Coyotes are sometimes confused with other wild animals such as red or gray foxes. Coyotes can be distinguished from these two members of the dog family by their larger body size. They may also be confused with dogs because adult coyotes may resemble a German shepherd with some noticeable differences. Coyotes have a thin muzzle, a bushy tail usually carried at a downward angle, and constantly erect ears. Although coyotes occasionally breed with dogs producing the “coydog” hybrid, research has shown that this phenomenon is very rare in the southeastern U.S. Most coyote-looking animals observed in the wild are probably coyotes.

The size and weights of coyotes are commonly overestimated because their long furry coat masks a bone structure lighter than that of a dog. South Carolina coyotes weigh between 20 and 46 pounds (the average female weighs 29 pounds, and the average male weighs 33 pounds) and measure between 48 and 60 inches long.

There is great variation in the coloration of coyotes. They range in color from almost pure gray to rufous (red). Pure black (melanistic) coyotes



are rare but have been documented in South Carolina. Coyote coats usually vary from buff-yellow to reddish-yellow to brown. The belly and throat areas are light gray or white. A mane of black-tipped hairs is typical among coyotes as are black-tipped hairs over the upper tail and rump.

Before the 1940s, the coyote was an animal of the deserts, mountains, and plains of the west and southwestern U.S. Today coyotes are found throughout the U.S., Canada, and Mexico. Coyotes are very adaptable and opportunistic animals. The loss of the red wolf, a top competitor with other canine species, and the clearing of forested land has allowed for the invasion and translocation of the coyote into the southeastern U.S. This range expansion is normal. Documented releases of coyotes have been made in South Carolina by individuals seeking to “run” coyotes with fox hounds. Part of the range expansion may be related to these releases. In South Carolina, the coyote now occurs in every county, and densities are highest in counties having large areas of pasture and agricultural cropland intermingled with woodlots.

Habitat Needs

Coyotes are flexible and adaptable in their habitat requirements. They will live almost anywhere adequate food is available. Coyotes use a variety of cover types to escape from dogs or man, to protect their pups, or to use as daytime resting sites. These cover types include brush-thickets, tall grass, or wooded areas. Woodlots in association with creek drainages are most often used by coyotes during daylight hours. These woodlots are thought to be the center of activity for coyotes in large areas of open farm country. The number and location of woodlots in this habitat might determine the numbers of coyotes there.

Coyote dens may be found in a wide variety of places, such as brush-covered slopes, steep banks, rock ledges, thickets, and hollow logs. Denning sites are usually in a remote area away from human activity.

Coyote feeding areas are as varied as the prey they consume. Since coyotes are opportunistic feeders, the type of feeding habitat changes according to the abundance and availability of prey. Cropland, pastures, hayfields, clearcut forested areas, and overgrown fields are used extensively by coyotes when feeding on mice and rabbits, an important coyote food source.

Coyotes will eat whatever is easiest to obtain and consistently present. Rodents, rabbits, and similar sized mammals and carrion make up the bulk of the coyote winter diet. During winter months, rodents and many times cow remains are found in coyote stomachs. Cow remains are usually attributed to scavenging by coyotes. Livestock carrion can be an important winter food source. Carrion is thought to support higher coyote densities that might not exist if livestock producers regularly practiced proper disposal techniques. Coyotes eat vegetable matter, fruits, and insects, especially grasshoppers, in substantial amounts in the summer. They are especially fond of watermelons. Other food items they eat include deer, birds, groundhogs, cats, and fish. One study of coyote diets in Mississippi found that deer fawns made up over 50 percent of the diet of coyotes during peak fawning period.

It is unknown, however, whether this was a result of scavenging or predation. Recent work in South Carolina at the Savannah River Plant support that coyotes may be significant predators of deer.

Coyotes will drink water from any available source, such as ponds, creeks, rivers, or lakes. Water must be readily available for these animals.

Coyotes are basically solitary and do not travel in packs like wolves. In most cases, coyotes travel and feed as individuals or in pairs, hunting small prey. Family groups of six to eight coyotes may be seen. Coyote pairs or family groups live in distinct, non-overlapping territories. Territory size is thought to be influenced by coyote densities and prey availability. Territory boundaries are maintained by scent marking, not fighting. A small percentage are nomads and do not respect territorial boundaries. Territory size varies from 1½ to 10 square miles. Most activity is confined to a much smaller area. In the fall, many young coyotes move from their birth territories in search of a place to settle. These movements often cover 10 to 50 miles.

Coyotes are active day and night but will travel more extensively and for long periods during night hours. Most activity occurs around sunrise and sunset. This is also the time when most feeding and social interactions occur. During the daytime, coyotes usually rest or bed in different locations each day. In good habitats with plenty of prey, coyote densities during the pup-rearing season can vary from 1 to 5 coyotes per square mile. Average population density is usually 1 adult coyote per square mile.

Reproduction

Coyotes mate in February or early March and give birth to 3 to 7 young 60 to 63 days later. Female coyotes may breed with one or more males but form a pair bond with only one male. The same pair may breed from year to year but not necessarily for life. Litter size varies from 2 to 17 with an average of 4 to 6. Pups are born in late March through May and weigh about 1½ pounds at birth. They are born helpless and totally dependent for food and protection. Pups are cared for by the mother and possibly other “helpers,” usually young of the previous year. The paired male helps by providing food for the young. Pups nurse for 5 to 7 weeks and begin eating regurgitated food at 3 weeks of age. Their eyes open at about 14 days, and their teeth erupt at about the same time. Pups reach adult size by 9 months of age.

Pups begin leaving the areas of their birth in August through December. Dispersing young may wander miles before a suitable, unoccupied area is found. During this time, mortality is very high, and as many as 70 percent of the young coyotes will die.

Food supply appears to determine the number of females that breed and particularly affects the number of yearling females that breed. If the food supply is good, more females will breed due to their healthier condition. Most female coyotes do not breed until their second year.

Coyotes die from many natural and man-made causes. People are responsible for the majority of deaths among coyotes older than 5 months of age. Coyotes are also susceptible to a number of canine

diseases, including canine distemper, hepatitis, mange, parvo virus, and rabies. Average annual mortality rates of 30 to 40 percent for adults and 70 percent for juveniles are typical.

SKUNKS

We are all familiar with the unmistakable odor that skunks discharge when provoked. This obnoxious odor causes humans to fear and dislike skunks. Despite our dislike for them, skunks are, for the most part, beneficial to us because they feed on insect and rodent pests. The word skunk originates from the Algonquin Indians and refers to the spraying of musk.

Skunk Characteristics

Two species of skunks live in South Carolina, the striped (*Mephitis mephitis*) and the spotted skunk (*Spilogale putorius*). Striped skunks are the most abundant in the state. Skunks are often referred to as polecats, civet cats, hydrophoby cats, or big striped skunks. The spotted skunk is incorrectly called a civet cat because of its similarity to Old World civets. Skunks are not closely related to either true civets or to cats.

Skunks are members of the weasel family (skunks, river otters, long-tailed weasels, least weasels, badgers, and mink) having characteristic musk glands, which in the skunk are responsible for its obnoxious odor. The scent, produced by two internal musk glands located at the base of the tail, is usually released for self-defense. Before spraying the thick, volatile, oily, sulfur-containing compound, skunks usually stamp their front feet rapidly and growl or hiss. They generally walk a short distance on their front feet and raise their tail as a warning before releasing any scent. The fluid is released in a fine spray directed accurately up to 10 feet and less accurately for 20 feet. Skunks can discharge the spray several times within a short period. The fluid is painful if it gets in a person's eyes and may cause temporary blindness for up to 15 minutes.

Few animals can be confused with these typically black-and-white spotted or striped animals. Striped skunks are short, stocky mammals about the size of a domestic house cat. They typically have a triangular-shaped head tapering to a blunt nose, a large bushy tail, and large feet equipped with well-developed claws. Their color pattern is typically characterized by two prominent white stripes down the back in a coat of jet black fur. The amount of white on the back varies tremendously from just a patch on the head to stripes covering the entire back. Adult striped skunks weigh between 4 and 10 pounds although individuals weighing more than 12 pounds have been recorded. Striped skunks measure between 23 and 28 inches in length.



Striped skunk



Spotted skunk

Spotted skunks are about ½ the size of striped skunks. They measure 10 to 27 inches long and weigh 1 to 4 pounds. Males are generally larger than females. The animal appears to be much more weasel-like and is readily distinguishable by white spots in front of each ear and on the forehead and 4 to 6 broken white stripes on the back. These animals are much more nervous than striped skunks and are better climbers.

The striped skunk can be found throughout the southern half of Canada, the U.S. except the desert southwest, and northern Mexico. South Carolina striped skunk populations are greatest in the Piedmont. Opening up of forest lands and the increase in agricultural lands in the early 1900s benefitted the striped skunk and allowed the animal to expand its range. Skunks are most abundant in counties that have small tracts of unbroken forests.

Eastern spotted skunks range from northeastern Mexico through the central U.S. to the Canadian border. They can be found throughout the southern U.S. Spotted skunks are less common than striped skunks in South Carolina and are found most frequently in the highlands of the state.

Habitat Needs

Because many of the habits of the two species are similar, the habitat requirements, biology, and natural history of these two species will be combined. Skunks can be found in a variety of habitats throughout South Carolina. Favored haunts include rolling hayfields, fencerows, brushlands, woodland edges, weedy fields, rocky outcrops, wooded ravines, stone walls, and drainage ditches. Home to a skunk is an underground den that may be found in vacant buildings, under house porches, culverts, brushpiles, tree stumps, lumber piles, or in abandoned fox or groundhog burrows. The dens are lined with leaves, hay, or grasses. Skunks use a variety of dens for loafing during the day, for giving birth and raising young, and for periods of inactivity during the winter. During the day, skunks usually sleep in the den although during the warmer months they may bed in vegetation along fencerows, hayfields, or pastures. During the winter months, skunks may remain inactive in the den for a period of days or weeks. Skunks do not hibernate but become inactive during cold weather, relying on stored body fat to get them through the winter. Several skunks may share the same den during winter to conserve body heat.

Skunks must have free drinking water available in their home range. Striped skunks may also use aquatic habitats when they feed on crayfish, fish, frogs, or snakes. Spotted skunks avoid this type of habitat.

Skunks are opportunistic feeders, feeding on both plant and animal material. Favorite skunk foods are grasshoppers, crickets, beetles, wasps, cutworms, and other insect larvae. When insects are not available, skunks will eat mice, rats, shrews, moles, chipmunks, and other small mammals. They will also eat reptiles, amphibians, fish, fruits, and garbage. Occasionally they will feed on poultry and the eggs of ground-nesting birds. Most of a skunk's diet consists of small mammals and insects that are considered pests to man.

Skunks are nocturnal, becoming active from sunset to slightly after sunrise. Female skunks are not great travelers; whereas, male skunks may travel up to 4 or 5 miles a night during breeding season. Normal skunk home ranges vary from 1 to 1½ miles. During the breeding season, males move slowly, become active during the day, and are reluctant to flee when endangered. This is the time when skunks are often struck by cars. Skunks are not territorial and tolerate other skunks in their range. This non-territoriality allows for concentrations of breeding skunks in localized areas.

Reproduction

The breeding season for skunks in South Carolina begins in late January when males begin searching for females near winter dens. Males are polygamous and will mate with several females, sometimes in succession. Females are receptive to males during their one heat period which lasts nine to ten days. Mating triggers ovulation about 42 hours after insemination.

After a 59- to 77-day gestation period, young striped skunks are born in May and June. Usually 5 to 9 young striped skunk kits are born in a litter, but there can be as many as 18 or as few as 2. After a 50- to 60-day gestation period, spotted skunks give birth to 1 to 6 young (the average is 4). The kits are blind, wrinkled, thinly furred and totally helpless at birth. The kits weigh about 1 ounce at birth. After 2 to 4 weeks, their eyes open, and the young skunks are able to discharge fluid from their scent glands. Kits will nurse for 6 to 7 weeks and follow the female on hunting trips until they are 2 months old. Young skunks are weaned at about 2 months of age. Families break up during August and September when the young leave to find their own homes.

Skunks die from a variety of causes. Coyotes, foxes, bobcats, great horned owls, and barred owls all relish skunks. A variety of diseases and parasites are common to skunks. Rabies and leptospirosis are the primary diseases responsible for deaths in skunks. Skunks are a primary source of infection for other species of animals involving these two diseases.

Skunks are very susceptible to rabies. Because they can become locally abundant and can transmit rabies to other mammals, skunks cause concern for human health and domestic animal safety. Rabies is a serious viral disease that infects many types of warm-blooded animals and is generally spread by direct contact with an infected individual, usually from the saliva of a biting animal.

When a skunk becomes infected with the rabies virus, it may go unnoticed for a period of time. Symptoms may not appear for weeks or months. During this time, the infected animal may transmit the virus to the other animals it contacts. In the final stages of the disease, skunks may seem tame or listless, show signs of excessive salivation, become unusually aggressive or nervous, wander about during the daytime, showing little fear of humans.

Skunks are usually docile, slow-moving animals, and their main period of activity is from sunset to sunrise. If you notice a skunk acting

strangely (aggressive or nervous, wandering in the daytime, or tame and listless), do not approach it. Parents should warn children never to approach or pet a skunk or any other wild animal. If you live in an area with a large skunk population, all pet dogs and cats and important livestock should be vaccinated for rabies. Do not keep skunks or other wild animals as pets because they cannot be effectively immunized against the disease. Furthermore, they may have contracted rabies at an early age and be infected, yet fail to exhibit symptoms for some time.

WEASELS

The weasel is an absolutely fearless hunter. It will attack a man or any other creature that tries to interfere with feeding. Weasels are generally considered beneficial because they are efficient predators and a terror to rats and mice. Only the occasional individual is a nuisance that will invade a henhouse and kill all the poultry it can find.

Weasel Characteristics

The only weasel known to occur in South Carolina is the long-tailed weasel (*Mustela frenata*). The long-tail weasel is the most common and widely distributed weasel in North America. It is easily recognized as a long, slender animal with rather large, rounded ears. Pelt color is a rich brown on the sides and back with a light-colored neck and belly. The tip of the tail is black. Long-tailed weasels measure 11 to 17 inches in length, and the tail may account for $\frac{1}{4}$ to $\frac{1}{2}$ of that length. Adult male weasels weigh between 5 and 16 ounces, whereas adult females weigh between 3 and 9 ounces. The long-tailed weasel can be distinguished from the least weasel by its short tail without the distinctive black tip.

Long-tailed weasels are found throughout the U.S. and southern Canada, except in parts of the desert southwest. The least weasel is a northern animal, ranging from Alaska and Canada southward into northern Illinois and Indiana, Ohio, and in the higher Appalachians to North Carolina. Scattered populations of weasels live in South Carolina. Though weasels are not abundant anywhere in South Carolina, they are found more often in the Piedmont than in the Coastal Plain.



Habitat Needs

Long-tailed weasels are more adaptable than other weasel species. They can be found along forest edges, brushlands, fencerows, stream banks, and agricultural areas where there are adequate den sites, food, and water. Dens are often modified chipmunk burrows, a crevice or hole in a stone wall, a cavity beneath a stump, or some other secluded place. The nest is made of densely packed grass lined with mouse and shrew fur. The burrow may contain skins and bones of animals that were eaten. As with most weasels, food abundance (particularly small voles and mice) is important in determining the abundance of weasels.

Long-tailed weasels are more food generalists than are least weasels. Long-tailed weasels eat chipmunks, voles, deer mice, and an occasional snake, frog, insect, fruit or berry, or ground-nesting bird and their eggs. Weasels have voracious appetites and will eat one-third of their body weight every day. Free-standing water also appears to be an important habitat component as long-tailed weasels have been recorded as "great drinkers."

Weasels are generally active at night; however, they can be seen hunting for chipmunks or meadow voles in daylight hours. They are active summer and winter. Their gait is a bounding gallop with the back arched so that the hind feet are placed just behind the prints of the front feet. This makes a distinctive track of groups of four prints. A weasel will climb a tree when chasing its prey but does not seem at ease there. Weasels are inquisitive creatures, emerging from hiding to investigate the slightest noise and often standing erect to get a better view.

Home ranges of long-tailed weasels are larger than those of least weasels. Home range size depends on prey availability. In areas with plenty of food, home ranges typically vary from 25 to 60 acres. If food is scarce, home range size may increase up to 200 to 400 acres. Good habitat with an abundant prey source can support up to 25 or more long-tailed weasels per square mile.

Reproduction

Long-tailed weasels breed in July through August. The time of breeding and the number of litters that least weasels produce per year is related to prey abundance. If prey are abundant, least weasels may have 2 or 3 litters in a year. Long-tailed weasels exhibit delayed implantation like other members of the weasel family. Long-tailed weasels have a long gestation period (205 to 337 days) and give birth to 4 to 8 young in April. Young weasels are born naked, blind, and helpless. Their eyes do not open until they are 35 days old. By 3 months of age the young are nearly mature. Young females may breed in their first summer; males do not breed until they are 2 years old.

Little information is available on the mortality of weasels. Great horned owls, barred owls, rough-legged hawks, foxes, coyotes, and domestic cats have been observed eating weasels. Weasels are also susceptible to a variety of parasites, including fleas, ticks, mites, and worms. Weasels are also susceptible to canine distemper.

BOBCAT

Often called a bay lynx, barred bobcat, catamount, lynx cat, wildcat, or cat of the mountains, the bobcat (*Lynx rufus*) is one of the most elusive of all furbearing animals.

Bobcat Characteristics

The bobcat slightly resembles a housecat, but is about twice its size. The bobcat also has longer hind legs and a shorter tail. Male bobcats are larger than females and weigh between 16 and 55 pounds. Males measure about 34 inches long complete with a 5¾-inch tail. Females measure about 31 inches in length and weigh between 8 and 33 pounds. The height of a bobcat at the shoulders varies between 20 and 23 inches.

The bobcat's general coloration is yellowish or reddish brown streaked or spotted with black or dark brown. The guard hairs are black-tipped. Its belly is white with black spots, and there are several black bars along the inside of the forelegs. The tail has several dark bands that become more distinct at the tip. The underside of the tail is whitish. Bobcat fur is dense, short, and very soft. No true color phases occur, but all-black (melanistic) bobcats have been reported. There is tremendous individual color variation within the bobcat's range.

Bobcats have a short, broad face with ruffs of fur on each side. The ears are prominent and pointed with a tuft of black hair at the tip. The back of the ear is black with a central white spot. The bobcat has sharp, retractable claws. There are four toes on the hind feet and five on the front. The tracks show only four toes on the front feet because the fifth toe is raised.

Historically, the bobcat could be found in all the lower 48 U.S., parts of southern Canada, and northern Mexico. It was eliminated from many densely populated and heavily farmed midwestern states by the early 1900s. The animal appears to be doing well in the U.S., except in the midwest and central Atlantic coast around Delaware and New Jersey. It seems to be expanding its range into many areas that previously supported only lynx. Bobcats are found throughout South Carolina, being most abundant in the Coastal Plain, but are apparently increasing in the Piedmont.



Habitat Needs

The bobcat is adapted to a wide variety of habitat types, from swamps to deserts and mountain ranges. The only habitat type not used is intensively farmed agricultural land where rocky ledges, swamps, and forested tracts have been eliminated. It appears to prefer forested areas with a dense understory vegetation with a large prey base. Prey abundance, protection from severe weather, availability of rest areas, dense cover, denning sites, and freedom from disturbance are the key features in bobcat habitat.

In some areas, ledges are critical habitat. Ledges appear to be activity centers that provide protective cover, protection from harassment, and an area for courtship activities. These areas may also serve as gathering grounds for solitary cats.

Another important feature of bobcat habitat is denning sites. Bobcats use cliffs, rocky ledges, or rock piles as denning sites. The animals use these areas for refuge from harassment, for breeding and raising young, and for shelter. Brushpiles, hollow trees, and logs may also serve as rest areas and dens. Bobcats need more than one den site within their home range because females with young often use more than one denning site.

Bobcats, like many predators, are opportunistic and will attempt to take almost anything available. Insects, fish, reptiles, amphibians, birds, and mammals have been reported in bobcat diets. Mammalian prey is the most important group, and the bobcat is best adapted to prey on rabbits. The cottontail rabbit appears to be its principal prey throughout its range.

The bobcat most frequently kills prey weighing between 1½ to 12 pounds (rabbits, large rodents, opossum-sized animals). The second most frequently taken prey weighs more than 12 pounds (beaver and deer). The final groups of prey weigh between ½ to 1 pound (squirrels and rats) and less than ½ pound (mice, shrews, and voles).

The size of bobcat home ranges varies according to prey availability and abundance, sex, season, climate, and topography. Bobcat ranges tend to be large, dictating low densities throughout much of its range. Typical densities average about one animal per 3 to 5 square miles. Home ranges typically vary from 1 to 80 square miles.

Bobcats are territorial, and resident animals confine their movements and activities to specific ranges. Transient bobcats (young or sexually immature adults) may exhibit long-range, erratic movements but move into home ranges that are vacant due to the death or removal of a resident animal. Male home ranges are usually larger than those of females (2 to 5 times as big) and may overlap several female home ranges. Females tend not to overlap ranges of other females. Nevertheless, bobcats appear quite adaptable; female ranges have overlapped each other, and some resident bobcats have even shifted home ranges altogether.

The animal's social structure and territory boundaries are maintained in part by a complex system of scent marking using urine, feces, the anal

glands, and scraping with the feet. As part of this system, bobcats use "stretching trees" (dry, barkless snags) to help define territories.

Reproduction

Female bobcats generally come into heat once a year during the spring (February or March) although bobcats may breed from January through July. Females may breed their first reproductive season; whereas, males generally do not become sexually mature until age 2. About 62 days after breeding (the range is 50 to 70 days), female bobcats give birth to 1 to 4 (usually 3) kittens in a crude nest made of leaves and moss located in a rock crevice, hollow tree, or similar shelter. At birth, bobcat kittens' eyes are closed. They begin suckling immediately while the mother licks their fur dry. They open their eyes at about 10 days of age. The female does not leave the young for 2 days, sustaining herself by eating the placenta, feces, and any stillborn kittens. By the end of the fourth week the kittens begin eating solid food. The kittens are weaned after 7 or 8 weeks, but remain with the mother until autumn.

Most mortality in bobcat populations is in the juvenile age class. Forty to 50 percent of all juvenile bobcats do not reach age 2. The most important factor affecting this mortality is food availability. Young cats are most susceptible to death during the period when they leave their mother and the establishment of their own home range. Bobcats are not commonly preyed upon, although foxes, owls, and adult male bobcats will prey on kittens. Because of the solitary nature of bobcats and their propensity for changing denning and resting areas frequently, bobcat populations have not succumbed to die-offs as a result of heavy parasitic infections. Bobcats can live up to 10 years in the wild.