



Skunk Ecology and Damage Management Techniques for Homeowners

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Introduction

Skunks are probably the most misunderstood mammals of North America. Contrary to popular opinion, skunks are not born rabies carriers; they don't flick urine from their tails as a defense against predators; their spray cannot cause permanent blindness; and holding them by the tail does not prevent them from releasing musk. In fact, skunks are shy, secretive animals that discharge a pungent scent (or musk) only when disturbed or harassed. They are one of the least popular of all common wild animals, yet humans benefit from skunks because a majority of their preferred food items include insects, rodents, snakes, and carrion (dead animals).

Species Description

There are four species of skunks found in North America: striped skunk (*Mephitis mephitis*), spotted skunk (*Spilogale putorius*), hooded skunk (*Mephitis macroura*), and hog-nosed skunk (*Conepatus leucontus*). Of these, only the striped skunk and spotted skunk are found in Wyoming.

The word skunk is reported to be an adaptation of the Abenaki Indian word "segankw" or "segongw." Many variant forms of the name are common in other Indian dialects.

Striped Skunk

The scientific name of the striped skunk, *Mephitis mephitis*, is derived from the Latin word "mephit," meaning bad odor. This species has a stout body (approximately the size of a domestic cat); triangular head tapering to a well-rounded nose pad; small,

round ears; and small, black eyes with indiscernable pupils. Although their legs are generally short, the rear limbs are somewhat longer than the front. Each foot has five toes; however, the front feet have long, curved claws while the back feet have straighter and shorter claws. The tail is long and bushy, accounting for nearly half the total body length (20 to 30 inches).

The head and body are glossy black, except for a narrow white stripe extending from the base of the nose pad to the forehead and a rounded white patch on the pate extending as a single, wide bar to the shoulders where it splits into two bars of variable length. There may be some white hairs in the tail and, occasionally, a small white patch on the chest.

The average weight of a skunk ranges from 4 to 10 pounds, with the minimal weight occurring in March and maximum weight in October. Males lose about 48 percent of their weight in the winter, females 55 percent. Both sexes gain weight from August through October in preparation for winter, then progressively lose weight over the stressful winter period. However, females gain additional weight during April and May due to pregnancy.

Spotted Skunk

Some taxonomists recognize two species of spotted skunks: the eastern and western varieties. However, most experts consider all spotted skunks to be the same species. The generic name *Spilogale* is derived from the Greek "spilos," meaning spot, and "gale," meaning weasel. The specific epithet, *putorius*, is from the Latin word "putor" for a foul odor.

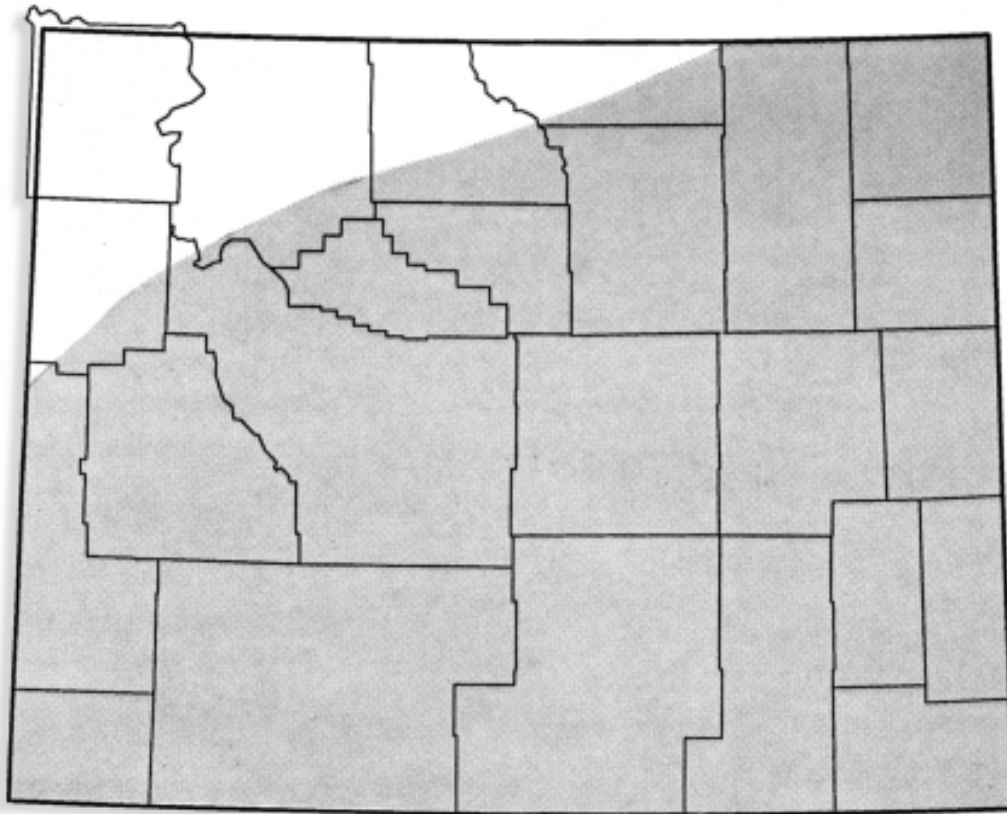


Figure 1. Distribution of the spotted skunk (*Spilogale putorius*) in Wyoming. The striped skunk (*Mephitis mephitis*) is found statewide (Crowe 1986).

Spotted skunks are considerably smaller than striped skunks, averaging 14 to 20 inches in total length, with the tail accounting for more than 33 percent of this length. The pelage is black with white spots and four to six broken white stripes. Adult males weigh about 1½ pounds and females about 1 pound.

Skunks have a pair of scent glands, one on each side of the anus, that produce and store musk. Muscles surrounding the glands propel musk through papillae, or retractable nipples, that protrude into the anal opening. Spotted skunks' scent is stronger and more objectionable than the scent of striped skunks. Unlike striped skunks, spotted skunks often discharge musk while standing on their front feet with their hind feet in the air.

Distribution

The striped skunk is found throughout the United States, southern Canada, and in the extreme northern portion of Mexico. In Wyoming, they range from deserts and grasslands to above timberline in the mountains.

Population estimates of striped skunks vary from less than 2 per square mile to more than 50 per square mile throughout their range, and numbers fluctuate widely from year to year. Abrupt population declines commonly are due to disease-associated mortality.

Spotted skunks inhabit most of the United States, except far northern areas, and northern Mexico. Even though spotted

skunk numbers are low in Wyoming, they are found everywhere except in the northwest (Figure 1).

Habitat Requirements

Striped skunks prefer clearings, pastures, and other types of open lands bordering wooded areas. On native prairies, striped skunks seek cover in wooded thickets and timber fringes along streams where they establish dens in hollow logs or hollow limbs. Wooded areas provide more protection during winter.

Although there is no specific habitat type preferred, striped skunks select areas of sparse vegetative cover where they can find water. Striped skunk populations have expanded due to the increase of suitable habitat from agricultural and land-clearing practices. For example, grainfields (corn, oats, and wheat), where abundant cover and food exists, provide excellent habitat for juvenile skunks. Likewise, fence rows bordering grainfields are also good feeding areas for adult skunks. Signs of skunks digging for grubs and beetles frequently are observed in these areas. Grasshoppers, one of the striped skunk's preferred summer and autumn foods, also are abundant along fence rows.

While spotted skunks share similar distribution ranges with striped skunks, they are mostly found in dry, rocky areas with ample brush. Within these habitats, spotted skunks generally are abundant only in localized areas.

Den Characteristics

Skunks will often use dens excavated by badgers, red foxes, coyotes, muskrats, and other animals; however, some skunks dig their own dens. Two- to 3-foot deep badger holes are often modified and used by a number of different skunks. One individual might winter in a modified badger den, while another will occupy the same den as a natal site in the spring.

Skunks that construct new dens usually select grassy areas in sloping or hilly terrain with good drainage. Dens are commonly located directly under barbed wire fences since these locations are rarely disturbed by farm equipment or domestic livestock. Dens are shallow and simple in design with more than one entrance. In natal dens, young skunks (or kittens) are easily reached from the surface.

During winter, females and males commonly use the same dens. Depending upon population density, as many as 20 females may share a den with 1 male, although more normal ratios are 1 male for every 2 to 7 females.

After weaning, young skunks do not use ground dens. However, when den sites become more plentiful after mid-September, juveniles will retreat into them during daylight hours.

Skunks commonly defecate in or near den sites. Investigations of excavated dens reveal that side tunnels branching from the main tunnel commonly are used as defecation areas. At other dens, small piles of droppings are observed near the entrance.

Spotted skunks are strictly nocturnal, using dens more frequently than striped skunks. They are rarely encountered during daylight hours or even on moon-lit nights. In severe winter weather, spotted skunks remain inactive in dens for short periods but do not hibernate.

Food Habits

Skunks are omnivorous and opportunistic in their food habits, consuming insects, plants, small mammals, birds, eggs, and fish. Their diet varies with the season and particular geographical area.

In the spring, skunks' diet is primarily mammals, eggs, and birds. Ground-nesting birds and their eggs are vulnerable during spring, while small mammals in agricultural areas become vulnerable as they concentrate in vegetative cover along fence rows due to farming activities. In late summer and early fall, insects (mainly beetles and grasshoppers) are the primary food items, supplemented with rodents, birds, amphibians, and reptiles. Skunks also consume fruits and grains, such as corn, black cherries, nightshades, and ground-cherries, when available.

Field and house mice are important food items in the winter. Rats, cottontail rabbits, and other small mammals are taken when food is scarce. When severe winter weather restricts foraging opportunities, skunks feed on carrion.

Skunks use a variety of tactics to gather food. To catch honey bees, skunks scratch on the hive with their front feet and snag bees as they exit the hive. To capture ground beetles, skunks defecate and return

to their feces several hours later to eat beetles attracted to the excrement. Bird eggs are opened by throwing them with their front feet until the egg strikes a hard object and breaks. Before consuming caterpillars, skunks roll the insects on the ground with their front paws to remove the hair. Toads also are rolled on the ground to remove poisonous skin secretions.

In agricultural areas, skunks have been observed stalking and flushing insects from heavy cover crops. In windrowed alfalfa fields, skunks commonly walk slowly along a windrow to flush grasshoppers from the piled alfalfa. When a grasshopper lands in the open space between two windrows, a skunk will leap and capture the insect between its front paws or pin the insect to the ground with its body.

General Biology

Reproduction

Adult skunks begin mating in late February, while yearling females postpone breeding until late March. Skunks have a relatively short breeding period. Female skunks commonly have another estrous cycle in early spring if they don't conceive during the first breeding period. The gestation period is approximately 62 to 75 days. Females usually have one litter of four to six offspring per year.

Estrous females allow males to mate freely. Although unbred non-estrous cycle females do not assume a receptive pose, they will not reject males attempting to breed them. Bred females chase breeding males away by emitting continuous vocal noises and

exhibiting foot-stamping displays. This behavior begins a week after mating successfully.

Captive female skunks exhibit extreme defensiveness one week prior to giving birth and for several weeks afterward. Hissing and foot-stamping are common, but they increase in intensity after giving birth. In captivity, females often utter loud and persistent screeches when adult males are placed in the cage with them.

Captive nesting females remove all straw from the nest box approximately one week before parturition. They give birth on the wooden nest box floor. Apparently, females remove nesting materials because newborn skunks commonly become entangled in nesting material and cannot nurse.

Newborn skunks weigh about 1¼ ounces at birth and are born with their eyes and ears closed. Young skunks open their eyes within two weeks, and their ears usually become erect within five or six days. (Note: This can require up to 27 days.) Claws are white and soft at birth but darken and become hard after two or three days. Teeth erupt at approximately 40 days of age.

Newborn skunks cannot crawl and are totally helpless at birth. At about three weeks of age they move around using a swimming motion and begin to walk at five weeks. Although musk is present at birth, skunks cannot raise their tails and eject it until three weeks of age.

At five weeks, young skunks begin to eat soft foods such as fish. They eat hard foods

by seven weeks of age. Weaning occurs when young are approximately two months old; however, the exact time of weaning is hard to determine since captive females do not show any aggressive behavior toward their young. Lactating females even adopt and raise stray or lost skunk kittens. Young skunks can survive without supplemental nursing at two months, but females permit young to nurse as long as they desire. Young skunks usually stop nursing when they can maintain themselves on solid food. At eight weeks old, young skunks weigh about 1 pound.

After the breeding season, the family group consists of the mother and her offspring. Adult females do not tolerate males during this period. From the time youngsters are about two months old, they accompany their mother on hunting trips. Some skunks, however, travel with their mothers as early as 42 days after birth and become independent of parental care at 50 days. Young skunks are completely independent by the time they are approximately three months old.

Movements and Activity Patterns

Skunks have three movement gaits: gallop, canter, and pace. A gallop is used when speed is necessary. The front and hind legs move rapidly in unison, with the hind feet striking the ground parallel to each other in front of the tracks made by the front feet. Skunks normally canter when travelling to and from feeding areas. In easy bounds, the hind feet strike the ground alternately between tracks made by the front feet. The pace, a commonly observed waddling gait, is used mainly while feeding and is charac-

terized by the limbs moving in lateral pairs.

When necessary for feeding or to escape from danger, skunks swim. They swim like dogs with only their heads and tails visible above the water surface.

Activity periods are determined by several factors such as temperature, snow cover, crusted snow over dens, hunger, sexual urges, food availability, and season. Striped skunks are primarily active at night, but can be seen during dusk or dawn periods. Spotted skunks are strictly nocturnal.

The normal home range area of both species is less than 2 miles in diameter. However, during the breeding season, a male may travel 4 to 5 miles each night. In winter, skunks typically remain in their dens, except for periods of unseasonably warm weather. They do not hibernate, but remain dormant for about one month during the coldest part of winter. They may den together in winter for warmth, but generally are not social animals.

Defense Reactions

Skunks are normally mild-tempered, non-aggressive animals that rarely exhibit offensive behavior. Even when other animals or people are in close proximity, skunks will ignore the intruders unless they are disturbed. Some researchers believe that this behavior is due to poor sight, hearing, and smell. But, if skunks are cornered or closely pursued, they usually face the intruder, arch their backs, elevate their tails, stamp the ground with their front feet, and shuffle backward. This posture warns intruders to retreat and positions skunks in a favorable position for discharging musk.

When confronting a threatened skunk, intruders should avoid loud noises and quick, aggressive actions and retreat quietly and slowly to avoid getting sprayed with musk.

Foot-stamping is one prominent behavioral trait used to display displeasure for intrusion. Young skunks and pregnant or lactating adult females will stamp their front feet at the least disturbance. They arch their backs, spread their rear feet relatively wide apart, and hold their front feet close together while pounding rapidly on the ground. On hard ground, this sound can be heard several feet away.

In captive skunks, young litter mates have been observed stamping their feet at each other in playful gestures. This is the only playful behavior observed in captive skunks.

When defensive postures and warnings go unheeded by potential enemies, skunks will discharge musk as a last resort to repel attackers. Skunk musk is an oily, phosphorescent substance with a yellow tint.

Creamy yellow curds are sometimes present. Musk odor is so powerful that it can be detected up to 20 miles away under ideal conditions. If consumed accidentally, musk acts as a depressant of the central nervous system and produces unconsciousness if large dosages are swallowed. When coming in contact with the eyes, it causes an intense burning sensation but leaves no permanent harmful effects.

Skunks will avoid fouling their fur with discharged musk. Usually, they will not discharge musk when the tail is held over

the anal opening or when the anus is held tightly against the ground.

Musk is discharged in two forms: an atomized spray where individual droplets are nearly invisible or a stream that separates into raindrop-sized particles in flight. Streams of musk are generally discharged with a slight turning motion so that drops of discharged musk cover an arc of 30 to 45 degrees. This technique increases a skunk's chance of hitting the intended target.

The chemical composition of musk from striped and spotted skunks differs slightly, but both are highly offensive and effective at repelling potential attackers. A chemical description of striped and spotted skunk musk follows. Numbers in parentheses are minimum and maximum percent ranges for each chemical component.

Striped Skunks:

trans-2-Butenyl thioacetate (12 to 18%)

trans-2-Butene-1-thiol (38 to 44%)

3-Methylbutanyl thioacetate (2 to 3%)

3-Methyl-1-butanethiol (18 to 26%)

2-Methylquinoline (4 to 11%)

2-Quinolinemethyl thioacetate (1 to 4%)

2-Quinolinemethanethiol (3 to 12%)

Spotted Skunks:

trans-2-Butene-1-thiol (30 to 36%)

3-Methyl-1-butanethiol (48 to 66%)

2-Phenylethanethiol (2 to 5%)

Other volatile compounds (less than 1%)

Remedies to Neutralize Musk Odor

Thiols and thioacetates are the primary compounds responsible for the pungent odor in skunk musk. Thiols are produced by the degradation of proteins. For example, thiols are responsible for the odor produced from decomposing flesh and fecal matter. They are highly volatile and dissipate quickly. Thioacetates, however, are slowly reduced to thiols in the presence of water, causing the lingering musk odor long after the skunk encounter.

Over the years, a number of homemade remedies have been found to neutralize musk odor on pets sprayed by skunks. These mixtures will not entirely eliminate the odor but reduce the smell enough to tolerate your pet.

Tomato Juice and Vinegar

Mix equal amounts of tomato juice and vinegar, then soak the sprayed pet for at least one hour. In severe situations, the pet may need soaking for two hours. Wash the pet with a mild detergent after soaking. When tomato juice is unavailable, other tomato products such as paste or sauce may be substituted.

Hydrogen Peroxide, Baking Soda, and Soap

A chemist from Molex, Inc., in Lisle, Illinois, developed this recipe:

1 quart of 3% hydrogen peroxide

¼ cup baking soda

1 teaspoon of liquid soap

Mix these ingredients together, and immediately wash your pet while the solution is

bubbling. Rinse with water after washing. The mixture generates large amounts of oxygen. **DO NOT** try to bottle the mixture, as it will explode if contained.

Commercial Deodorants

Several commercial animal smell deodorizers are available to mask skunk musk odor. Many contain scents such as peppermint extract. However, these commercial products usually cannot chemically neutralize musk.

Neutrolem Alpha is a popular commercial deodorant. Mix 2 ounces of Neutrolem Alpha to 1 gallon of warm water and spray on pets or contaminated surfaces. This product is available from some pest-control operators or may be obtained by writing the manufacturer and requesting a list of local suppliers. Neutrolem Alpha also can be obtained from the Division of Animal Industry, Colorado Department of Agriculture, 1525 Sherman Street, Denver, Colorado 82030.

Ammonia or Bleach in Water

To remove musk odor from clothing, use a stronger homemade remedy from readily available household cleaning supplies. The following remedy should be used for clothing only and not applied to pet fur or skin.

A solution of ammonia or bleach in water has been somewhat effective in removing musk odor from clothing. Soak clothing in either of these solutions for several hours, then wash in a mild detergent. **Do not mix bleach and ammonia together as this combination forms chloramine, a gas that becomes toxic when inhaled, even in small amounts.**

Parasites and Diseases

Unlike many other mammals, skunks are generally not bothered by large numbers of ectoparasites. Fleas, for example, are uncommon on skunks and usually occur as accidental infestations. Skunks can pick up fleas after occupying other mammals' dens. They also pick up fleas while consuming small mammals such as mice and other rodents. One four-year study reported that 68 fleas were found on 240 examined skunks, a relatively low incidence of infestation.

Similar low rates of lice infestations are common. One study reported that only one lice species was found on 50 percent of the skunks examined, and the overall lice numbers were low. April, August, and September are the greatest lice infestation months for skunks.

Another ectoparasite, the wood tick, is found in low numbers as well. In one study, only 10 percent of examined skunks carried wood ticks. Tick numbers on infested skunks were highest in May and June.

Endoparasites are more of a problem for skunks than ectoparasites. As a rule, over 50 percent of skunks are infested with helminths. These include nematodes, cestodes, acanthocephalans, and pentastomides. Infestations are worse in late summer and early fall compared to late winter and spring. During late winter (the dormant period), skunk digestive tracts are empty. This suppresses nematode reproduction. Although endoparasites rarely cause mortality, infestations do impact skunk growth rates and weaken resistance to diseases and illnesses.

Skunks can be significant vectors for spreading rabies, especially when localized outbreaks of the virus occur. However, many people have a misconception that all skunks carry rabies all the time. This is not true.

Skunks exhibiting addled, tame, or aggressive behavior, **especially during daylight hours**, are definite rabies suspects. If they must be handled, avoid being bitten or accidentally touched by saliva. The best advice is to avoid any skunk that is out during the day. Children should be warned against handling friendly skunks.

Skunks suspected of having rabies should be reported to local health and animal control authorities. When killing skunks suspected of rabies, try not to damage the head since brain tissue is used to test for rabies.

Life Span

Skunks live only about 2 years in the wild, but commonly live up to 10 years in captivity. Common causes of mortality in the wild are pneumonia, distemper, rabies, and in some cases, starvation.

Skunks are not preyed upon heavily, primarily because of the extremely strong pungent odor of their musk. Predation only occurs when predators are near starvation. Occasional predators include great horned owls, mountain lions, eagles, coyotes, badgers, foxes, and bobcats. Dogs will chase skunks but usually retreat after being sprayed with musk.

Damage Problems and Economic Impacts

Skunks can be a nuisance to homeowners, but they rarely cause major economic damage. Homeowners commonly complain that skunks dig under building foundations or take up residence in uninhabited homes or farm buildings. Occasionally, they raid gardens looking for fruits and vegetables; however, because skunks are opportunistic feeders and ample food supplies usually exist, economic damage from skunks is minimal.

In farming areas, skunks sometimes feed on corn, eating the lower ears. In high skunk density areas, this can cause limited economic losses, but most damage to corn crops is attributable to other animals such as raccoons, birds, or deer. Where cornstalks are knocked over, raccoons are usually responsible for the damage. Damage to upper ears of corn is indicative of birds, squirrels, or deer, rather than skunks.

Damage to turf in yards, golf courses, and cemeteries may occur when skunks dig for insect larvae or roots. These diggings appear as small, cone-shaped, 3- to 4-inch shallow holes or patches of upturned earth. However, several other animals dig in lawns, including ground squirrels, pocket gophers, badgers, and dogs. These animals generally cause more economic impact than skunks.

Skunks can significantly reduce waterfowl and game bird production by preying on nest eggs and chicks, especially where skunk densities are high. Damage manage-

ment practices are sometimes used to improve game bird populations.

Periodically, skunks will kill farm poultry and eat the eggs after crawling under fencing and gaining access to the pens. Unlike rats, weasels, mink, and raccoons, skunks do not climb fences to reach poultry and eggs. Characteristics of destroyed eggs will provide clues to predator identification. Eggs destroyed by skunks will be crushed at one end with shell fragments pushed inward. In contrast, raccoons neatly remove one end of the egg shell without crushing or fragmenting it; birds will pierce egg shells with their bills; foxes carry eggs away and cache them for later feeding; and weasels and mink generally crush the entire egg. In addition, weasels, mink, dogs, and raccoons usually kill several chickens or ducks at one time while skunks kill only one or two birds.

Tracks also help identify the animal causing damage problems. Both hind and front feet of skunks have five toes. Claw marks usually are visible, but heels of the front feet are not. Hind foot tracks are approximately 2½ inches long.

Droppings, or feces, are another identifying mark of problem-causing animals. Skunk droppings are ¼ to ½ inches in diameter and 1 to 2 inches long. They often contain undigested insect parts.

Odor is not a reliable indicator of skunk presence. Sometimes dogs, cats, or other animals sprayed by skunks retreat under houses, and homeowners mistakenly think skunks are present.

Legal Status

In Wyoming, both striped skunks and spotted skunks are classified as predatory animals and can be taken without a license in any manner and at any time of the year. In most other states, striped skunks also are not protected by law. However, spotted skunks are fully protected in many states due to their limited abundance.

Damage Prevention and Management Techniques

Non-Lethal Practices

Proper Sanitation

Since skunks are omnivorous in their food habits, any type of food source will attract them. Exposed pet food, scattered open garbage, and even bird seed attract skunks. Loose, available food materials should be stored in sealed containers.

Small rodents and animals are attracted to freely available food. Likewise, skunks are attracted to the rodents congregating around open food sources. This is why skunks commonly establish living quarters in barns, crawl spaces, sheds, or garages. Cleaning up unsanitary garbage disposal or storage areas, sealing pet foods, and eliminating rodents often eliminates skunk problems.

Grubs, cutworms, and other insects commonly found in unmaintained lawns also attract skunks. Lawns with high insect infestations should be treated with a broad-leaf herbicide to eliminate weeds used by insects as food plants. Also, apply an insecticide with low toxicity to mammals for reducing insect pests. CES educators

can provide information on appropriate herbicides and pesticides for each county area.

Eliminate Potential Den Sites

Skunks often den under existing structures. Openings that lead under building foundations or abandoned barns should be permanently plugged. Mobile homes should be skirted, and areas under porches, stairs, or crawl spaces should be filled in or closed. Sheet metal or wire netting can be used as barrier material. Allow enough material so the bottom part of the barrier can be bent outward at least 12 inches in an “L-shaped” pattern and buried at least 1 foot below the ground surface. This configuration prevents skunks from burrowing underneath the barrier.

Open-ended buried culverts or large diameter pipes lying on the ground are also attractive den sites. Unused pipes should be plugged and wire mesh screens placed on the open ends of buried culverts.

Skunks are attracted to brush, rock, junk piles, old cars, loosely stacked wood piles, and old buildings (Figure 2). Cleaning up and eliminating these potential den sites will discourage skunks. Since skunks prefer dense vegetation, keep grasses and weeds mowed near buildings and machinery.

Exclusion

Fences exclude skunks since, generally, they do not climb. A 2-inch wire mesh fence at least 3 feet high and extending 1 foot below the ground surface with 1 foot bent outward at a 90 degree angle (as previously described) will exclude skunks.



Figure 2. Cleaning up and removing old cars, brush, rock, and loosely stacked wood piles eliminates potential den sites and discourages skunks. (Photo courtesy of Lyle Crosby, retiree, USDA APHIS, Animal Damage Control, Casper, Wyoming.)

Honey bee apiaries are irresistible targets for skunks looking for honey and insect meals. Bee hives can be fenced with chicken wire or 2-inch wire mesh (as described earlier) to repel skunks. If hives are protected from livestock by an electric fence, add an additional wire 5 inches above the ground surface to keep out skunks.

Repellants

Evicting skunks from den sites can be accomplished with common household products such as mothballs (naphthalene crystals), paradichlorobenzene crystals, or ammonia-soaked rags. Naphthalene or paradichlorobenzene crystals should be placed in cloth bags and attached to wire or string for easy retrieval. Ammonia-soaked rags should be suspended from wooden stakes to allow air to dissipate the ammonia odor. Bags of naphthalene or paradichlorobenzene crystals and ammonia-soaked rags can be placed under floors, down burrow or den entrances, under foundations, or between studs.



Figure 3. Wooden cage traps baited with fish-based or meat-type cat food, fox trapping lure, canned fish, chicken parts, or sardines work well for live-trapping skunks. (Photo courtesy of Lyle Crosby, retiree, USDA, APHIS, Animal Damage Control, Casper, Wyoming.)

In some cases where there is only one opening to a den site, a one-way door can be installed on the entrance that allows a skunk to exit but not enter. In this situation, hang a hinged section of ½-inch wire mesh hardware cloth over the outside foundation opening. The wire mesh one-way door should be larger than the opening and bent outward at a 90 degree angle on the bottom to discourage burrowing under the door. The skunk is forced to exit from the repellent odor, or allowed to naturally leave at night if repellents are not used, but can't re-enter the den. Spreading flour, dry sand, fine dust or lime on the ground will make tracks visible, providing evidence that the skunk left the den.

After the skunk has left, temporarily seal the entrance. Because skunks are nocturnal, this should be done after dark. Remember, there may be more than one skunk, and between May and June a litter of young may be present. Therefore, open the entrance the next evening for one hour

after dark to permit any remaining skunks a chance to exit. When all skunks are excluded, permanently seal the entrance.

In some cases, skunks get trapped in a cellar, window well, or excavated ground pit. To remove a skunk in this situation, lower a cleated board slowly into the hole and walk away. The skunk will generally climb out and escape when undisturbed.

Skunks prefer dry den sites with good drainage. Where feasible, skunks can be forced to leave den sites by soaking the den with slow-running water from a garden hose. This technique works well on small den sites located in ground surface depression areas.

Live Trapping

When skunks cannot be controlled effectively by exclusion or repellent methods, live trapping can be worthwhile. Wooden or wire mesh cage traps, 12 inches wide by 12 inches high by 36 inches deep, baited with fish-based or meat-type cat food, fox trapping lure, canned fish, chicken parts, or sardines work well for trapping skunks (Figure 3). Place the bait in a small, disposable cup at the back of the trap beyond the tripping device. Where house cats are present, substitute mayonnaise, eggs, peanut butter, dried fruit, or bread soaked with honey as bait. These baits will attract skunks but not cats.

Wire screens or mesh traps should be covered with burlap cloth, canvas, or a plywood shell. Coverings keep trapped skunks in the dark so they remain calm and less likely to release musk. Some commercially available cage-type live traps, made of

sheet metal instead of wire, do not need additional covering.

Traps should be located in areas frequented by skunks such as near den openings, along the sides of buildings, near trails or fence openings, or near piles of brush, lumber, or trash. Road culverts or heavily vegetated gullies also are good areas to place traps. Traps can be placed in open areas or concealed with boards or grass. Try to locate traps in shady areas on a flat, smooth surface using temporary wire mesh drift fences or natural topography to guide skunks into the traps.

Slowly approach a trapped skunk and place a tarp over the trap if it is not already covered. Carefully pick up the covered trap and place it gently in the back of a pickup truck or other type of open vehicle. When handled gently and slowly, skunks will seldom release musk. If a skunk sprays musk while in a trap, the trap can be washed at a car wash and aired out to eliminate the odor.

Transport the skunk at least 10 to 15 miles away and release it in an uninhabited area. Attach a long length of heavy string or fishing line to the trap cover so the cage door can be opened from a distance.

Live traps can be made by attaching a sliding door to a 5-gallon pail or piece of 6-inch pipe. Metal traps last longer and are easier to wash. Leg-hold traps are not recommended because they almost always cause skunks to discharge musk.

Lethal Practices

Usually, non-lethal damage management techniques are preferred over lethal methods. However, in some situations, such as when skunks are suspected of rabies, lethal techniques are necessary.

Shooting

Usually, shooting skunks will result in musk discharge. However, an accurate neck shot with a small .22 caliber rifle that severs the spine produces a quick kill and may prevent spraying. Avoid shooting a skunk in the head if you want to have it tested for rabies.

Fumigants

Fumigants or poisonous gas cartridges are used to eliminate skunks in dens. Toxic gas cartridges are placed in den or burrow entrances where the heavy toxic gas settles into the den cavity. These cartridges are available in many ranch or farm supply stores or by contacting the Wyoming Department of Agriculture in Cheyenne.

Before fumigating any den site, be certain the den is used by skunks and not other animals. Follow label directions and be careful of fire hazards when using gas cartridges near buildings or other structures.

Trapping

When euthanasia of live-trapped skunks is necessary (i.e., when skunks are suspected of carrying rabies), it can be accomplished by using vehicle exhaust. The trap containing the live skunk can be put inside a plastic garbage bag and then filled with

exhaust fumes from a plastic hose attached to a vehicle exhaust pipe. If a bag is not available, place a tarp or plastic sheet over the trap. Seal the tarp edges with soil and pipe in engine exhaust for 10 to 15 minutes. Skunks disposed in this manner should be buried deep enough so a pet can't dig them up.

A less humane way to kill skunks after trapping is to use plastic PVC pipe filled half full of water. Cap one end of a 2-foot piece of 6-inch PVC pipe and fill it half full

with water. Place the pipe in the ground at a 60 degree angle, with 4 inches of the pipe extending above ground level. Pour some fish oil or place sardines in the pipe for bait. The skunk will enter the pipe to reach the bait and become trapped due to the angle of the pipe and the slick inside pipe walls. After the skunk drowns in the water, simply cap the open end of the pipe and transport the carcass for disposal. Skunks trapped in this manner rarely discharge musk.

Summary of Damage Prevention and Control Practices

Proper Sanitation

- Clean up unsanitary garbage disposal or storage areas to avoid attracting skunks.
- Seal exposed pet foods in closed containers to avoid attracting skunks.
- Reduce mice, rodent, and other small animal populations.
- Eliminate unusually high insect pests in unmaintained lawns with herbicides and insecticides.

Eliminate Potential Den Sites

- Locate and seal openings under buildings, foundations, crawl spaces, porches, and mobile homes.
- Place wire mesh screens on open-ended culverts and plug large diameter pipes lying on the ground.
- Clean up piles of brush, rock, junk, wood, and old cars.
- Keep grasses, weeds, and other dense vegetation mowed around buildings and machinery.

Exclusion

- Install wire mesh fencing around gardens, poultry pens, and garbage storage areas.
- Erect an electrically-charged wire 5 inches from the ground around bee hives.

Repellants

- Place naphthalene (moth balls), paradichlorobenzene crystals, or ammonia-soaked rags under floors, down burrow or den entrances, or between studs to evict skunks from dens.
- Soak small denning areas with slow-running water from a garden hose.

Trapping

- Live trap skunks with wooden, wire mesh, or commercially manufactured sheet metal cages, then relocate animals at least 10 miles away. Leg-hold traps are not recommended.
- When euthanizing live-trapped animals for human health reasons (rabies), pipe vehicle exhaust into a sealed plastic garbage bag containing the trapped skunk.

Shooting

- Only shoot skunks suspected of having rabies. Shoot them in the neck with a small caliber rifle.

Fumigants

- Place poisonous gas cartridges in den or burrow entrances to eliminate active den sites.

Summary

Skunks provide a multitude of benefits to humankind in the form of pest control and generally avoid contact with humans and their pets. Their conflicts with people stem from being a nuisance rather than a pest, and they cause little economic damage except in rare situations. Only 5 percent of a skunk's diet is comprised of items that are economically valuable to humans. For these reasons, it is not necessary to destroy skunks, except in cases where suspected rabies infections threaten human health.

Skunks are effective in reducing agricultural, lawn, and garden insect pests; controlling field mice and rats; and depressing

mole populations that cause lawn damage. Except in high density areas, skunks have minimal impact on ground-nesting birds due to the large abundance of alternative foods. The beneficial aspects of skunks far outweigh occasional damage problems they may cause.

In situations where skunks are a nuisance, non-lethal control practices are recommended to alleviate problems caused by individual animals. In rare cases where lethal practices are necessary, such as a suspected rabies infection that threatens human health, humane methods of trapping and euthanasia should be selected to dispose of individual animals.

Acknowledgements

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