
SKUNKS

Integrated Pest Management Around the Home and Landscape

Two species of skunk are found in California, the striped skunk (*Mephitis mephitis*) (Fig. 1), which is the most commonly found species, and the spotted skunk (*Spilogale gracilis*). Both are members of the weasel family and are equipped with a powerful and protective scent gland that can shoot a potent and pungent liquid as far as 6 to 10 feet. The secretion is acrid enough to cause nausea and can produce severe burning and temporary blindness if it strikes the eyes.

BIOLOGY AND BEHAVIOR

The striped skunk is about the size of an adult house cat and its fur is mostly black with white on top of the head and neck. In most animals the white extends down the back, usually separating into two white stripes. Spotted skunks are black with white spots or short white streaks. They are smaller than the striped skunk, about half the size of a house cat.

Skunks are nocturnal, hunting at night for insects, grubs, small rodents, snakes, frogs, mushrooms, berries and fruit, pet food, bird food, and garbage. Skunks have a high preference for eggs and, as a result, ground-nesting birds suffer losses.

Breeding usually occurs during February and March for the striped skunk; gestation time is about 9 weeks and litters range from four to six kits. After a few months the kits can be seen following their mother as she makes her nightly rounds in search of food. Skunks do not hibernate, but in regions of colder weather females may congregate in communal dens during the winter.

Skunks often den in burrows, but because they prefer to do as little digging as possible, they will use abandoned burrows dug by ground squirrels, fox, or coyotes,

enlarging them only if necessary. If dens are scarce, they will readily use brush piles, hollow logs, and culverts. In urban settings, they den under decks, porches, or beneath buildings.

There is cause for concern when skunks take up residence in an urban or suburban area because in California they are primary carriers of rabies, a viral disease transmitted by the bite of an infected animal. Skunks are also carriers of other diseases including leptospirosis, listeriosis, canine distemper, canine hepatitis, Q-fever, tularemia, and trypanosoma.

Skunks are attracted to residential areas by the ready availability of food, water, and shelter. They become a nuisance when they live under porches, decks, garden tool sheds, or homes. They like to feed on ripening berries and fallen fruit and cause many other garden problems by digging while in search of grubs and other insects. They often search for food in lawns by digging small pits or cone-shaped depressions that range from 3 to 5 inches across. Like raccoons, they may also damage lawns by rolling back sections of sod in search of insects.

LEGAL STATUS

The California Fish and Game Code classifies skunks as nongame mammals. Nongame mammals that are injuring or threatening property may be taken by the owner or tenant of the premises at any time and in any legal manner. Fish and Game regulations prohibit the relocation of skunks and other wildlife without written permission of the Department of Fish and Game. The prevalence of rabies in the skunk population is one of several major reasons for de-



Figure 1. Adult striped skunk.

nying relocation. For further information on the legal status of skunks, contact the California Department of Fish and Game.

MANAGEMENT

Because rabies is endemic in the skunk population, some city or county health departments assist in the control of skunks by providing trappers to remove them from residential areas. The skunk's propensity to spray their musk-laden spray is sufficient to make them unwelcome visitors, especially in close proximity to homes. Several actions can be taken to make gardens, yards, and residences less attractive to skunks.

Detection

Because they are usually active only at night, many people never see skunks as they travel through their neighborhoods or yards. Barking dogs may be the first apparent sign of their presence, and the odor resulting from a skunk/dog confrontation will provide positive evidence. If skunks repeatedly travel

through your yard or garden, sooner or later you will detect a faint skunk odor, even if the skunk has not sprayed. As with raccoons, an occasional visit by a skunk or a family of skunks may not be cause for concern, but if these visits become commonplace, some action is probably warranted. During the breeding season, males frequently spray when fighting over females. The presence of these odors in late winter is a signal that skunks might be nearby and that it could be necessary to take appropriate measures to prevent pregnant females from accessing potential nesting sites underneath buildings.

Habitat Modification

Potential den sites can be limited by cutting back overgrown shrubbery and by stacking firewood tightly. To reduce food sources, fallen fruit should be removed frequently. Garbage cans should have tight-fitting lids, and food items or table scraps should not be placed in compost bins. Food placed out-of-doors for pets should be removed by nightfall.

Exclusion

As with many other vertebrate pests, the best solution to skunk problems beneath porches or buildings is to screen or block them out. Close off all potential entrances or openings under houses, garden tool sheds, mobile homes, porches, and decks with ¼-inch mesh hardware cloth. The advantage of using the small mesh is that it will also exclude rats and house mice if installed correctly. Skunks will work hard to get into a desirable denning space, so take care to make fittings good and tight. If there is soil underneath the potential entrances, bury the wire 6 inches to make a good seal.

Once skunks have made their home beneath a building, the problem is a little more difficult because you have to be sure the animals have left before blocking the opening. One way to determine this is to sprinkle a smooth, ⅛-inch thick layer of flour just in front of the point of entrance to form a tracking patch. Examine the tracking patch soon after dark; the presence of footprints will indicate that the animal has left and the opening can be closed.

However, blocking the entrance is more problematic if there are several young left behind. If you are not sure that all the skunks beneath a building have left, a one-way, outward-swinging gate can be fashioned that will allow any remaining skunks to leave but not to re-enter. This gate can be constructed from ½-inch mesh hardware cloth hinged at the top of the frame and left loose on the other three sides. It must be larger than the opening so that it can only swing outward (Fig. 2). Skunks will push it open to leave but will not be able to push it inward to reenter. This is ineffective, of course, if the kits are not yet mobile; kits not yet able to walk may have to be removed by other means. The placement of one or more floodlights beneath the building facing outward through the skunk's entry point will often assist in driving them away from a location.

Trapping

Skunks can be trapped with an enclosed cage-type, live-catch trap. Plastic box traps are superior to wire traps because they are completely enclosed, thus reducing the risk of getting sprayed while removing the trapped animal from the site. Individuals who have no experience trapping skunks should hire a professional wildlife control operator. Professionals have the experience and all the necessary equipment to trap and dispatch the animal. An experienced trapper is also much less apt to be sprayed, an event to be avoided if at all possible. Skunks cannot be relocated without a permit, and because of the potential for rabies it is unlikely the Fish and Game Department will issue one.

Other Control Methods

A few commercial products are available for repelling skunks, but unfortunately they are not very effective. Ordinary household ammonia has been used with some reported success as a home remedy repellent for driving skunks from beneath buildings.

It is sometimes also suggested that food for skunks can be reduced by managing grubs and other insects in lawns. This is done with the hope that the animal will

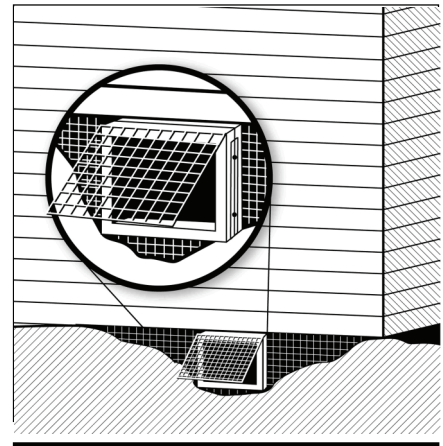


Figure 2. A one-way door constructed to allow an animal to exit but not to return. Screen door must overlap frame to prevent reentry.

refrain from further digging. If your lawn is infested with insects or grubs, see *Pest Notes: Lawn Insects*, listed in References, or contact your local Cooperative Extension office.

Burrow fumigants such as gas or smoke cartridges may be used in rural areas if the burrows used by skunks can be located and are not under or near buildings. They are not generally recommended for use in residential areas because of the risk of fire and penetration of the gas into buildings. These cartridges are ignited and pushed into the skunk's burrow. The burrow is then sealed off with soil and packed tightly to prevent the toxic and asphyxiating smoke from escaping. Follow the product instructions carefully.

In rural areas where it is safe to do so, skunks may be spotlighted at night and shot. Since they may spray in the process, be selective in the location chosen for this control method.

Odor Removal

There are several options for odor removal. The chemical neutrolem-alpha is one of the most useful neutralizers for removing the unpleasant skunk scent on furniture or in buildings, but this material and products containing it are not readily available. There are also other commercial products sold for neutralizing or masking skunk odor. If

you cannot find such products easily, contact a professional wildlife control operator, who may be able to provide neutroleum-alpha or can tell you where it can be purchased. Do not use neutroleum-alpha on pets or people. If your dog or cat has confronted a skunk, call your veterinarian to determine current recommendations for washing the animal to get rid of skunk odor.

A home remedy formulation reported by some to be effective is as follows:

- 1 quart 3% hydrogen peroxide
- ¼ cup baking soda
- 1 teaspoon liquid soap.

Once the hydrogen peroxide is mixed with the baking soda, the mixture is unstable and generates oxygen, and thus cannot be bottled or stored. Apparently, oxidation changes the chemical composition of skunk scent so that it no longer smells. When the

fresh mixture is applied to items contaminated by skunk odor, the smell diminishes quickly. Any leftover mixture should be diluted several fold with water and poured down the drain. Hydrogen peroxide mixtures can be used safely on pets and people as well as on clothing and furniture. Rinse pets thoroughly with water after treatment.

Skunk Bites

Rabies, an infectious disease caused by a virus organism, is found in the saliva of infected animals. It affects only mammals and is transmitted most commonly by a bite. With the exception of bats, the disease is almost always fatal. People can survive the bite of a rabid animal, but only if medical attention is received in time.

A physician should attend to ALL skunk bites, no matter how minor, and the local health department should be notified of the incident.

Skunks that seem tame or listless and wander about during daylight hours should be treated with great caution because this behavior is symptomatic of rabies. Also, if they exhibit no fear of people or pets and show some aggressive behavior, chances are quite high that they are rabid.

If you live in an area where skunks occur, be sure your dogs and cats are routinely vaccinated against rabies. Some dogs will confront skunks whenever they get an opportunity. Even though they suffer when they get sprayed, some dogs never learn.

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REFERENCES

Dreistadt, S. H., M. A. Harivandi, H. Costa, and J. S. Hartin. March 2003. *Pest Notes: Lawn Insects*. Oakland: Univ. Calif. Agric. Nat. Res. Publ. 7476.

For more information contact the University of California Cooperative Extension or agricultural commissioner's office in your county. See your phone book for addresses and phone numbers.

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WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits or vegetables ready to be picked.

Do not place containers containing pesticide in the trash nor pour pesticides down sink or toilet. Either use the pesticide according to the label or take unwanted pesticides to a Household Hazardous Waste Collection site. Contact your county agricultural commissioner for additional information on safe container disposal and for the location of the Household Hazardous Waste Collection site nearest you. Dispose of empty containers by following label directions. Never reuse or burn the containers or dispose of them in such a manner that they may contaminate water supplies or natural waterways.

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Gardener's Best Friend - Master of Pest Control: The Skunk!

by Erika K. Yery, licensed wildlife rehabilitator

Description and Behavior

The skunk is probably the best known but least understood mammal in North America, and can be found throughout the US, except in desert areas. Four kinds of skunks are native to the United States: most commonly found in Virginia is the Striped Skunk (*Mephitis mephitis*), and occasionally the Eastern Spotted Skunk (*Spilogale putorius*). The other two species are the Hog-Nosed skunk "Rooter Skunk" (*Conepatus mesoleucus*), and the Hooded Skunk (*Mephitis macroura*), which are both confined to the extreme southwest.

Skunks live up to 6 years in the wild, but may live up to 10 years in captivity. All skunk species are cat-size or smaller, have long fur, long bushy tails, and are black and white. The striped skunk usually weighs from 4 to 10 pounds; males are about 10 percent heavier than females, and as much as 8 percent longer. The striped skunk has a magnificent tail - about one-third of the animal's total length. Under the base of the tail, is the skunk's notorious ammunition - two grape-sized glands, one on each side of the anus, which contain a pungent musk that skunks can fire at will, by contracting the surrounding mass of muscle. On each scent gland is a small nipple-like outlet that can be aimed with lightning-speed, and perfect accuracy. Skunks prefer to avoid situations that call for action, but if provoked, may reluctantly let loose a barrage. Usually, the skunk goes through three warnings before resorting to a squirt. First, it stamps its front feet. Then, it raises its tail with the tip downward. The third and final warning, is when the tip rises up and spreads out. At this point, stand perfectly still, and the skunk may change its mind and wander off. Skunks can fire five or six consecutive rounds; each dose is about a fraction of a teaspoon. It will take up to a day to recharge the firepower. The spotted skunk differs in the method how it sprays - it will do a handstand on its forefeet, and spray directly over its head.

Skunks have sharp teeth and long claws for digging. They are nearsighted, but

have a keen sense of smell and hearing. The striped skunk is not a good climber. Although it can climb up wire mesh, fences, and boards, it seldom climbs trees - the long nails are a definite handicap in climbing. The spotted skunk on the other hand, is an excellent climber, able to climb a tree with ease. It can also climb down a tree headfirst.

Skunks are usually silent, but may churr and make grunting sounds while feeding. They can growl, snarl, twitter like a bird, and squeal. Skunks molt their fur just once a year, starting in April. The underfur is not replaced until early fall, although the guard hair is replaced by June. Skunks are nocturnal, and both of the local skunks are most active primarily after dark. The striped skunk is the more crepuscular, often starting to feed in the early evening, and perhaps not hurrying back to its den until sunup. On overcast days in the breeding season, the striped skunk may be out in the day-time looking for a mate, or just because they are hungry after the enforced denning of winter. The spotted skunk rarely comes out while it is light in the evening, and is almost always back in its den before sunup. Since skunks are considered rabies vector species (along with the fox, raccoon, and bats), some people believe that these animals are rabid when they are seen during the day. However, both skunks may be out during the day when their habitat has been destroyed, when they are desperate for food, when youngsters have lost their mother, or when males are seeking females during mating season. Both skunks dislike heat, and neither will be out if they can avoid it on a hot day - their black coats absorb and retain too much heat. Neither skunk is a true hibernator, but will den up for extended periods during severe cold weather.

Habitat Skunks prefer semi-open areas, grassy and weedy fields, brushland, pastures, and rural and urban neighborhoods. Usually, they will den close to water. The striped skunk prefers an underground den that is in well-drained soil. Ideal conditions for striped skunks are wooded hillsides, bordering pastures or hayfields. The fields produce the insects that they need for food, the

hillsides the ideal den sites, and the forest prevents the soil from freezing as deeply, making the dens warmer. Most of the earthen dens used by the striped skunks are originally made by groundhogs and red foxes. Most dens taken over from groundhogs have two entrances, whereas dens dug by skunks themselves generally have a single opening. The striped skunk can and does dig its own den when it has to. They will also den under stumps or fallen logs, rock piles, and woodpiles. Spotted skunks like to den in hollow trees, if they can find one.

Due to the loss of habitat, and the competition for open land between wildlife and man, more and more skunks are taking up residence beneath houses, garages, and other outbuildings. A house on a pad can be tunneled under. Except when the female skunk has young in the den, the den is communal property and will be used again if there are other skunks in the area. Skunks travel extensively within their home range - sometimes one to two miles per night, crossing and recrossing the area as they search for food.

Diet Skunks are the gardener's and farmer's best friend. Their diet is almost entirely beneficial to man and his interests. All skunks are omnivorous, but most of their diet consists of animal matter such as grasshoppers, crickets, mice, voles and shrews, insect larvae, turtle eggs, worms, beetles, grubs, caterpillars, slugs, weevils, spiders, millipedes, baby rats, and mice. They also will eat fruit, tender buds from trees, grasses, and berries.

The skunk's greatest enemies are humans and dogs. Some dogs will kill skunks even after sprayed with musk. The great horned owl is also a predator of the skunk, and at times fox, bobcat, and the eagle may attack and kill skunks.

Lifecycle In February, breeding season begins, and lasts until the end of March. Males may stay with the female, but usually leave by April. In late April or early May, 61-69 days after mating, females deliver up to ten mouse-sized kits, but litters are usually five or six. Infants are born blind, deaf, and nearly naked, but the black and white color pattern shows. They weigh about one ounce. At 7 days

of age, the infant skunks have doubled their weight to 2 ounces. At 2 weeks, infants are fully furred, and weigh about 4 1/2 ounces. At 17 to 21 days, the eyes and ears will open; at the age of one month, kits weigh about 12 ounces and start walking. They are already able to stamp their feet and scold if angered - they may even try to assume the stance for spraying. Musk glands are about the size of peas.

In late June or July, kits are about 7 weeks old and are about 1 1/2 pounds. They will begin making excursions outside of the den with their mother. When 2 months old, infants will begin travelling with their mother, and are fully weaned. By October, youngsters can be mistaken for adults, except for their smaller size. This is the time that skunks will prepare winter dens. Youngsters will share a den with their mother during the winter months. In warmer climates, skunks will stay active most of the winter. In colder areas, they will sleep through the coldest periods, but do not hibernate. Often skunks will use the same winter den used the previous year.

Rehabilitation. There was a time not long ago, when calls about skunks to rehabilitators were rare, but lately a week seldom goes by when several calls about perceived skunk problems aren't received. I believe the reason for the apparent increase in skunks is due to the unusually mild winter, the continuing destruction of wild habitats, and an increase in various garden pests. Some of the complaints are about skunks digging up yards. Attracted to areas infested with caterpillars, gophers, slugs, snails, moles, voles, and mice, the Gardener's Best Friend will most likely make visits to such yards. Skunks are going after slugs and grubs in the surface layer of the soil. This activity will subside as the soil dries out. Do not overwater your lawn, or the problem will persist.

Many of the skunk-related calls are about evicting a skunk from denning sites, such as under elevated sheds, openings under concrete slabs, driveways, porches, and crawl spaces under houses. Before sealing a den, it is important to determine whether or not the den is occupied. This can be accomplished by covering the

entrance with loose dirt. If a skunk is present, it will dig its way out that night and reopen the hole. If the dirt remains undisturbed for two to three nights (and it is not winter), it may be assumed that the den is unoccupied, and it may be permanently closed with masonry, boards, or hardware cloth. If it is an active den, the skunk can be evicted by installing a one-way door over the entrance, that will allow the skunk to leave, but prevents it from reentering. Leave the door in place for several nights, and make sure no new holes appear nearby. Remove the door and close the area as mentioned above. DO NOT evict skunks during spring and early summer, as kits may be in the den, and will perish without their mother.

I do not know why this happens so often, but "Skunks in the Garage" calls are very common. Advise: leave the garage door open at night, and make a path of cheese leading out an open garage door. Spread a 2-foot band of white flour after the garage door, so you can see the skunk's exiting footprints. Keep the door closed in the future. I actually had a woman caller beg me hysterically to come and remove the skunk. She refused to enter her house, and spent the night with a neighbor. Only after I inspected the garage the following morning, and assured her that the skunk was gone, did she reluctantly return home.

Another typical skunk call is "Skunks Stuck in Window Well". Skunks commonly fall into window wells and can't get out because they are poor climbers. Slowly lower a kitchen garbage can or cardboard box on its side into the well, with a chunk of smelly cheese in the back. Move slowly and talk to the skunk -- he won't spray as long as you don't come at him fast or touch him. Wait until he goes into the can or box, then raise it slowly like an elevator, and put it on the ground so he can amble out (after he finishes the cheese).

Callers also ask for advice when a pet has been "skunked". There is little agreement on how to remove skunk odor. The most widely used remedy is tomato juice, which some people claim works. Bathing an animal in tomato juice may seem to remove skunk odor, but in reality does

not, says Dr. William F. Wood, a professor of chemistry at Humboldt State University in Arcata, California. For a pet that has been sprayed, Dr. Wood suggests a mixture containing 1 quart of 3 percent hydrogen peroxide, 1/4 cup of baking soda and 1 teaspoon of liquid detergent. This could, however, bleach a pet's fur, he warns. Other skunk experts say a vinegar and water solution works best, while several other experts recommend Scope mouthwash, a solution of baking soda, and "Skunk-Off" (which is available in pet and feed stores). If you have skunks in your garden, don't evict them, as they will eat every insect "pest" that you don't want eating your garden. Be glad the skunks are there - they are truly the Gardener's Best Friend.

Some of the information in this article is from the following: Stinky Business, How to Rehabilitate Skunks by Share Bond; Furbearing Animals of North America by Leonard Lee Rue III; Pocket Guide to the Humane Control of Wildlife in Cities and Towns, Humane Society of the United States.

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