MONTANA DEPARTMENT OF AGRICULTURE

SKUNK MANAGEMENT

MONTANA DEPARTMENT OF AGRICULTURE
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This bulletin explains how property owners can identify, resolve and prevent problems with skunks.

Skunks of Montana

Skunks are medium-sized carnivores in the weasel family. Their black and white coloration provides a clear warning to everyone to leave skunks alone.

Two species of skunks reside in Montana, the western spotted skunk (*Spilogale putorius; Fig. 1*) and the striped skunk (*Mephitis mephitis; Fig. 2*).

Fig. 1. A spotted skunk.

Fig. 2. A juvenile striped skunk.

Western spotted skunks differ from striped skunks in several ways. First, they are more athletic than striped skunks. Spotted skunks can not only climb trees but can spray standing on their front legs. Second, the biology of spotted skunks differs significantly from striped skunks (Table 1).

Table 1. Key Skunk Facts

Feature	W. Spotted	Striped
Body Size	11 inches	14 inches
Weight	1.4 lbs	6 lbs
Mating	Sept-Oct	Mar-April
Litters/year	1	1
Litter Size	4	5-8
Birth	May	May-June
Weaning	August	Aug-Sept

Spotted skunks occur only in the southwest corner of Montana (Fig. 3). Unfortunately, spotted skunks are extremely rare. In the hope of learning more about the species, Montana Fish, Wildlife & Parks (MFWP) requests that individuals who trap or encounter spotted skunks notify the Area Biologist for their region (http://fwp.mt.gov/doingBusiness/contactUs/hqRegions.html). The biologist can then provide guidance on how this rare animal can be handled.

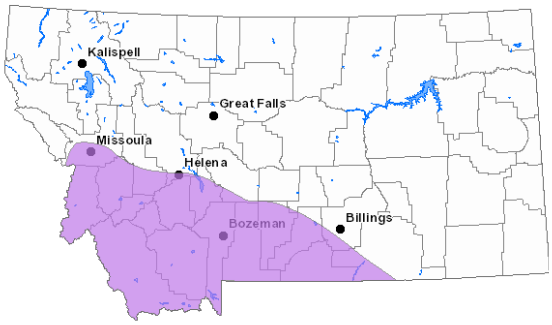

Fig. 3. Range of western spotted skunk.

In contrast, striped skunks can be found throughout Montana (Fig.4).

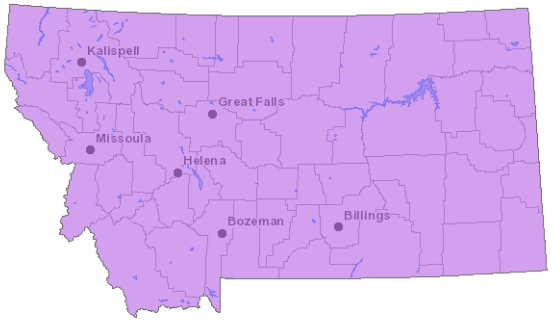

Fig. 4. Range of striped skunk.

Since Montanans will rarely encounter spotted skunks, this bulletin will focus on handling conflicts with striped skunks.

Striped skunks occupy forest edges and riparian areas but are also quite comfortable around man-made structures. Skunks are drawn to human residences by the availability of food (pet food & garbage), hunting grounds (lawns) and attractive den sites such as wood and junk piles, idle machinery and open foundations under structures. Skunks are an important predator in Montana eating rodents, small animals, eggs and insects.

DAMAGE

Skunks are famous for their noxious spray, which is an oily mixture containing highly odorous compounds known as thiols. Skunks hold the oily mixture in two glands located on opposite sides of the anus. When threatened, skunks send the oily mixture against their opponent either as a liquid stream or as a mist. Contrary to the Pepé Le Pew cartoon, skunks do not passively emit the odor. In fact, skunks avoid getting the spray on themselves.

In addition to the odor, skunk spray can cause temporary blindness in its victims, thereby allowing the skunk to escape. Some victims complain of difficulty breathing, headaches and even nausea and vomiting. Typically, symptoms will improve by moving to fresh air and treating the odor. If breathing is severely labored, obtain medical help as quickly as possible. Fortunately, skunk spray has not been found to transmit the rabies virus.

During mating season (Feb-Mar), female skunks spray unwanted male suitors. Frequently, this behavior notifies landowners that a skunk has taken residence on the property. Odor from skunk spray will diminish in intensity over time. If the odor, however, increases over time, then it is likely that a skunk has died and its sacs have opened. There are two exceptions to these odor principles. The first exception occurs when juvenile skunks are present. Juveniles tend to spray aggressively at every threat real or perceived. The second exception occurs when humidity levels rises. It is normal for skunk odor to diminish over time but to "reactivate" during rain or high humidity. This odor spike will resolve itself as humidity drops and the odor continues to dissipate.

Deodorizing Skunk Odor

While many remedies are suggested for eliminating skunk odor, only a few actually have any true effect. Many popular suggestions, such as tomato juice, actually don't work at all. The reason why people believe certain remedies work is because of a phenomenon known as "olfactory fatigue". Olfactory fatigue occurs when the nose is so overwhelmed by one odor that it can no longer smell it. Thus when a new smell is introduced, such as tomato juice, the nose can only identify it.

The following suggestions are based on research and the findings of industry professionals. The suggestions will work for the most common situations. If you are continuing to have problems, contact the Montana Department of Agriculture for more information at the numbers located at the end of this document.

Odor Theory:

Just as fire needs three elements, fuel, oxygen and heat to exist, odors need a source, transmission and a receiver to be smelled. Remove any one or more of the three elements and the odor will vanish.

Skunk odor events occur in one of two forms. These two types of problems require different solutions. The first is localized contamination, such as a dog that gets sprayed. The second problem is area contamination. Area contamination occurs when the odor disperses and penetrates locations, such as basements, crawl spaces or vehicles.

Deodorizing Localized Contamination

- Contain the site. Skunk essence is very potent. Avoid moving contaminated material to new areas. Don't allow a sprayed pet to enter the house. Avoid touching the pet with bare hands. Remove clothing and shower to avoid contaminating other areas.
- Treat affected sites with the following formula:
    - 1 quart of hydrogen peroxide
    - 1 cup of baking soda
    - 1 tablespoon of dish detergent
- Mix the ingredients in a bucket. Always mix it fresh. Never store the mixture in advance as the escaping oxygen will cause the container to burst.
- Wash the affected item with the mixture. For sensitive fabrics or products apply the mixture to a small portion that is out of view to see if the material becomes bleached.
- When applying to pets or people, keep the mixture away from eyes and the mouth.
- Reapply as needed.

Deodorizing Area Contamination

Treatment of areas contaminated with skunk odors is difficult because of the dispersed nature of the odor. It is essential to contain the odor as much as possible by not moving contaminated items to new areas. Essentially, there are three ways to treat contaminated areas 1. Dilution, 2. Masking and 3. Neutralizing. All the methods may be used individually or in any combination provided that one ensures that any chemicals used will not interact in a negative way.

Dilution involves reducing the concentration of the odor by washing affected items/areas with soap and water and/or blowing fresh air into the area. In time, the volatile compounds in the skunk spray will lower to a point where offending odors are no longer noticeable.

Masking reduces the odor of skunk spray by covering it with something that is more pleasant to smell. A variety of household deodorants can be used. Scented candles are also effective but require careful use to avoid causing fires.

Neutralization removes the odor at the chemical level by either encapsulating it or by breaking down the odorous compounds. Products available include Neutroleum Alpha®, Epoleon® N-100, Freshwave® and Nisus® Bac-Azap®. Always follow product labels when using. When permitted by the label, atomizers often allow applications to use less chemical to achieve greater odor control.

For more information contact the Montana Department of Agriculture Vertebrate Pest Specialist.

Skunks often betray their occupation of crawl spaces by the half-moon shaped (3- to 4-inch tall) entrance under the structure.

Skunks also predate on poultry and their eggs. Birds killed by skunks will often have damage around the throat and chest. To protect penned poultry, use screening with mesh size a half-inch or less. Skirt the foundation as described in the Habitat Modification section below to prevent skunks from digging under the wall. Skunks will also eat eggs by biting one end and licking out the yoke.

Skunks typically damage turf in late summer as they dig for grubs and worms. Skunks are precise in their digging and will create one-inch conical holes to remove the grub or worm (Fig. 5). Raccoons also damage turf but tend to shred the grass or roll up sod in stark contrast to the precise digging of skunks.

Fig. 5. Skunk digging in turf. Dime in photo for scale.

CONTROL METHODS

Habitat Modification

Conflicts with skunks can be prevented by removing items that attract skunks.

Avoid feeding or watering pets outdoors. If pets are fed outside, only provide enough food and water to be consumed in one feeding or remove items before nightfall. Otherwise, place food/water on elevated platforms at least two feet above the ground as skunks are not strong jumpers or climbers. Note that this method will not protect food/water from raccoons.

Place garbage in covered, skunk-proof containers, such as metal or plastic bins and dispose of the garbage frequently. Do not use plastic or paper bags to store garbage as skunks can tear them apart easily. Avoid putting food items in compost piles or secure compost with mesh fences (at least two feet high or plastic bins.

Clean up junk piles to discourage skunks from digging dens amongst the debris. Keep lawns mowed to reduce mouse habitat which skunks hunt for food.

Cover window wells that are four inches or more in depth to prevent skunks from being entrapped (Fig. 6).

Fig. 6. Plastic window well cover.

Prevent skunks from taking up residence under houses, in crawl spaces or other structures by extending walls to the ground and installing ¼-inch galvanized hardware cloth two inches below the ground and then bending it out 12 to 18 inches away from the wall to form as below ground skirt (Fig. 7).

Never perform exclusion work unless certain animals are not using the location. You do not want to trap an animal in a structure, especially a skunk.

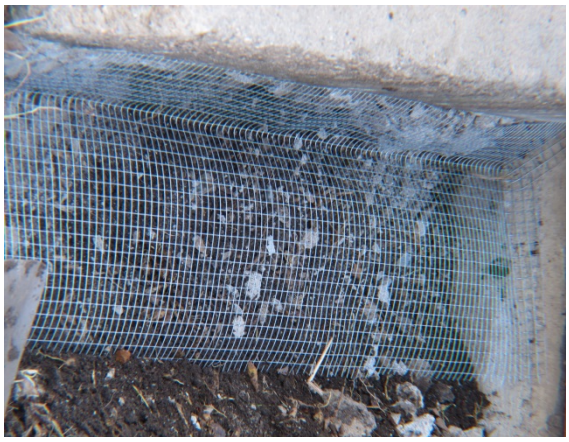

Fig. 7. (view from above) Wire mesh used to prevent skunk access under slab.

Remove doubt by corking the opening with newspaper, back filling with loose soil or inserting fragile sticks into the ground (Fig. 8) and monitor for at least five days of good and above freezing weather. If the newspaper or soil has not been disturbed, then it is unlikely that an animal is inside and you are free to secure the opening.

Fig. 8. Sticks placed before a suspected skunk entrance to confirm activity.

Frightening Devices
Skunks are not easily frightened. Noise makers, lights and even dogs have not proven successful in keeping skunks away from locations.

Repellents
Repellents are chemicals that animals avoid. No products are registered for repelling skunks. While mothballs are frequently touted as effective, they rarely are. Wildlife control operators frequently have caught skunks with traps near mothballs placed by landowners desperately trying to convince the skunk to leave. In addition, use of mothballs to repel skunks is an illegal application of the product and can put pets and children at risk of exposure to this product.

Toxicants
There are no toxicants registered for the control of skunks.

Fumigants
Ignitable gas cartridges are registered for the control of skunks in burrows located away from structures. Care must be taken to ensure that the burrows are not occupied by a non-target animal. Look for tracks, scat and other sign to confirm that the burrow is occupied by skunks. As ignitable devices, applicators must consider the potential for causing fires.

Ignitable gas cartridges are most effective following a soaking rain as the moisture fills gaps in the soil making it hold the toxic fumes better. In addition, a wet landscape is less likely to catch fire. Ignitable gas cartridges are available over the counter. Carefully read and follow label instructions before using.

Shooting
Skunks may be taken with firearms as common as .22 caliber rifles and 12 gauge shotguns. Skunks typically spray when shot regardless of whether the bullet placement is in the head or chest. However, some have claimed that shooting skunks in the chest with high-powered air rifles can dispatch skunks without odor.

Always follow firearms laws and the rules of safe shooting. If a skunk is suspected of having rabies or will be submitted for rabies testing, do not shoot it in the head.

Trapping
Trapping is the most common way to manage problem skunks. Several types of traps are available for taking skunks but cage and box traps are the easiest to use.

Cage traps have porous walls made of wire-mesh. Box traps have solid walls and are made of various products including sheet metal, PVC pipe, plastic and even wood (Fig. 9). Both traps are effective, but the box traps provide users with a greater margin of safety against getting sprayed or scratched.

Fig. 9. Cage trap (left) and box trap (right).

Humane Use of Cage/Box Traps.

It is a common misconception that cage/box traps always humanely capture wildlife. The fact is cage/box trapped animals can suffer terribly when the trapper has not considered the conditions that would confront a cage/box trapped animal. The following tips will help dramatically improve the humaneness of cage/box trap use.

1. Choose your trap locations carefully. Always consider the potential environmental conditions a trapped animal would have to endure. For example, traps located in direct sunlight can provide warmth for captured animals caught during the winter but bake animals caught during the summer. Is the trap below a roof line that would direct rain water on the trapped animal? Consider other possible scenarios.
2. Reduce the time. Endeavor to set traps only for the period of time the target species is active. Since skunks are nocturnal (active at night), set traps in the evening and close them again in the morning.
3. Provide shelter. With cage traps, cover the rear half of single-door cage traps or the middle portion of double-door cage traps with a durable cloth or cardboard. These coverings provide trapped animals with shelter against the elements as well as allow you a way to approach the trap without being seen. When using box traps, be sure that they are placed in shaded areas during the summer. Research shows that box trapped animals can experience significantly higher temperatures than animals caught in cage traps.

Select traps that are 7- x 7- x 24-inches in size or larger to ensure the trap is capable of capturing skunks. Place traps where skunk activity has been noted.

Be sure that traps rest squarely on the ground. Traps should not wobble as the skunk enters. Wobbly traps can fire prematurely and fail to capture the skunk. Place ¼-inch hardware cloth under cage traps to prevent trapped skunks from digging up soil beneath the trap. It is not uncommon for trapped skunks to drag in 10 pounds or more of soil into the cage trap.

Attractive baits for skunks include fat containing baits such as peanut butter, fish, fried chicken. Effective sweet baits include, banana, honey, marshmallows, molasses, etc. To reduce the likelihood of catching free-range house cats, avoid baits containing from fat and use sweet baits instead. Place bait on or behind the trip mechanism in a manner that will not interfere with the movement of the trip mechanism.

If you have access to the den entrance, use a positive set. A positive set is made by placing and barricading the trap(s) in such a manner so that ONLY the skunk exiting the burrow can be caught (Figs. 10-11). Thus the trap set positively captures the offending animals. Placement of multiple traps is recommended to improve the chances of catching all the skunks residing in the den. Ensure that barricades do not interfere with the closing of the trap.

Fig. 10. A box trap placed in a positive set before a skunk entrance

Skunks can also be caught in cage traps (box traps typically are not manufactured with two doors) without bait through the use of blind sets. Blind sets rely on placing traps in locations where the skunk will walk into the trap. Blind sets require the use of two-door cage traps 7- x 7- x 30-inches in size or larger. Position the trap over the burrow opening and barricade the sides so that the skunk leaving the den must enter the trap. If multiple skunks are involved, set multiple traps in front of the door and barricade as normal but place a board between the traps to prevent a trapped skunk in one trap from springing an adjacent trap. Always cover your two-door traps.

Use caution when trapping during the spring. Check the underbelly of trapped skunks for the presence of enlarged nipples. Enlarged nipples show that the skunk is a nursing female. Removing her will result in the abandonment and ultimate death of young. If the young are under a deck, then the odor of their oil sacs can become quite severe. It is advisable to release the mother on site and wait a few weeks so that the young can mature enough to be captured. Do not attempt to block access to your porch or foundation when the "skunks have left for the night. Despite its seemingly logical basis, this technique rarely works in real life and runs the risk of trapping skunks inside the structure.

Skunks residing under structures can be controlled without trapping by the use of one-way doors. One-way doors allow the skunks to leave but not reenter. Unfortunately, the effort to use one-way doors properly can be quite high. However, when landowners are willing to put in the work required, one-way doors can provide non-lethal control. Landowners interested in using one-way doors should contact the Vertebrate Pest Specialist for more information.

Disposal

Captured skunks should either be released on site, translocated or put down.

Fig. 11. Two box traps used in a positive set.

On-site Release. Before releasing the skunk, close doors to buildings as released skunks have a tendency to run into open buildings. Identify a part of your property where the skunk can escape to cover, such as tall grass or bushes. Keep children and pets away. Approach the trap carefully from the blind side. Cover any open portions of the trap with an old blanket. Carefully, move the trap to the release point. Avoid jostling the skunk. With a gloved hand, prop open the trap door when the skunk is away from the door (Fig. 12). Step away and allow the skunk to leave on its own. If you need the skunk to leave more quickly, grab the trap cover as you walk away (note this technique is not applicable for box traps).

Fig. 12. Stephen M. Vantassel releasing a cage-trapped skunk.

Translocation. Montana wildlife laws do not permit the translocation of skunks to public lands with permission. You may, however, translocate skunks to private land provided the land owner gives permission. Release sites should be at least 10 miles away and have habitat suitable for skunks.

Suitable habitat includes areas with a mix of woods and fields. Before moving the captured skunk, ensure that the trap is completely covered with a blanket and trap doors are secured. Gently lift the covered trap and place in an open-bed truck. If you drive smoothly to the release site, it is unlikely that the skunk will spray.

Understand that while translocation appears humane, it is extremely stressful on animals who must now find food and shelter while avoiding predators and competition with animals already in the location. If you choose to translocate, endeavor to release the skunk in the evening to give it time to orient itself before daylight. Never translocate skunks that appear ill to avoid spreading a disease to a new location.

Lethal Control. When performing lethal animal control, be sensitive to public sentiment. Never kill an animal in public view. Be discrete and respectful during the process. When moving the trapped skunk, do not shake or tip the trap or poke into the trap. You may induce the skunk to spray or bite. Always keep cage traps covered. Avoid moving the skunk in an enclosed vehicle. While skunks in covered traps usually do not spray, it might if you hit a hard bump in the road.

Trapped skunks may be dispatched by drowning or carbon-dioxide gas (CO_2). To drown a skunk, wire the doors to prevent opening, secure a chain on the trap and drop the trapped skunk into a water-filled barrel or stream/pond deep enough to cover the trap. Note that the skunk may spray before the trap is submerged. Wait 10 minutes before retrieving the trap. Shooting is not recommended as it can damage the trap.

Skunks may also be euthanized with CO_2. Purchase a carbon-dioxide tank (the same kind used to make soda) with hose and flow meter and obtain a plastic barrel large enough to hold the trap. Carbon-dioxide gas is heavier than air, so the bottom and sides should be airtight. The top, however, should not be air tight as some leakage is needed to allow the displaced air to escape as the CO_2 fills the chamber.

The chamber should be filled at a rate of 20% per minute. To calculate the needed flow rate for your chamber, measure the chamber's internal length, width, and height in inches. Multiply those three numbers (length x height x width) to determine the chamber's volume in cubic inches. For example, a 13- x 13- x 33-inch tank = 5,577 cu inches in volume. Divide by 61 to convert the volume to liters (5,577 divided by 61 = 91.42 liters or 91.4). Then multiply 91.4 by 0.20 because we only want 20% of the tank to fill per minute. This comes to 18.28 liters. Therefore, you would set your flow meter to a little more than 18 liters per minute (lpm) and leave it on to fill the tank completely in 5 minutes.

To euthanize the skunk, gently place the skunk into the chamber. Begin filling the chamber at the 20% per minute rate you calculated for your chamber previously. Place a secure, but not air-tight cover over the barrel. After 5 minutes, reduce the rate of flow to 3 to 5 liters per minute to save CO_2. Do not turn the flow off as you will need to maintain positive pressure to prevent fresh air from re-entering the chamber. Let the gas run at the lower rate. After 30 minutes, open the barrel and carefully monitor the skunk for at least 40 seconds to see if the skunk is still breathing. Keep in mind that breathing may be extremely shallow so look carefully. If breathing is present, continue with the infusion of carbon dioxide gas for another ten minutes and repeat the inspection process until death is confirmed.

Wear protective equipment such as gloves and remove the carcass carefully as dead animals still have teeth and claws. Dispose of the carcass by deep burial away from sensitive areas, such as water sources.

Disease

Skunks are a common carrier for rabies in Montana. While the majority of skunks are

rabies free, residents should treat all skunks with the caution as it is impossible to identify a rabid skunk by visual means alone. Always wear protective gloves when handling traps. Do not attempt to hand feed skunks. Consult the local health department when any person or animal has been bitten, scratched or come into potential contact with a skunk's saliva or nerve tissue as these are two key sources for the rabies virus. Skunks that appear sick or involved in a human or animal exposure should never be shot in the head as this can invalidate a rabies test should one be needed.

Skunks that appear injured, exhibit tremors, walk in circles, are aggressive or are wandering aimlessly should be reported to the local health authorities. Never release a sick skunk.

DEPARTMENT SERVICES

As with most programs, control of vertebrate pest species will be most effective when all affected landowners work together. The Montana Department of Agriculture vertebrate pest specialist program will work with county commissioners, extension agents and landowners to establish a program suited to local and county needs. Field demonstrations are provided to inform landowners how, when and where to control skunks, rodents and other field pests. Interested individuals should contact the Montana Department of Agriculture.

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Additional printed information on the control of ground squirrels and other vertebrates is available from the Montana Department of Agriculture website https://agr.mt.gov/Topics/Vertebrate-Pests

MONTANA POISON CONTROL
(Emergencies)
1-800-222-1222

MONTANA DEPARTMENT of PUBLIC HEALTH & HUMAN SERVICES
Injury Prevention Program
1-406-444-4126
https://dphhs.mt.gov/publichealth/EMSTS/prevention.aspx

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http://fieldguide.mt.gov/
Figs. 5-10. Stephen M. Vantassel/Wildlife Control Consultant, LLC.
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