

Removing Skunk Odor

Stephen M. Vantassel, Project Coordinator — Wildlife Damage
 Scott E. Hygnstrom, Extension Specialist — Wildlife Damage
 Dennis M. Ferraro, Extension Educator

Skunk spray is an odorous yellow-tinted, oily liquid that can permeate clothing and the environment for many days, whether the animal is alive or dead. This NebGuide describes some of the ways to reduce the famous odor using commercial products or home remedies.

General Background

Skunks are famous for their odorous defensive spray, deployed against perceived threats such as people, pets, and automobiles. They also spray in basements, garages, window wells, and under porches. Skunk musk spray is a yellow-tinted oily liquid stored in two sacs located on opposite sides of the anus. Each sac holds about a teaspoon of musk and is enough for multiple sprays. Skunk musk does not emanate from the animal as it does in the *Pepé Le Pew* cartoon; it is discharged through two “ducts” that allow the skunk to adjust the spray to a mist or stream, direct it at a specific target, and to shoot up to 15 feet with “both barrels.”

Skunk musk can temporarily blind and stun individuals unlucky enough to be sprayed in the face. Victims experience watering eyes, nasal irritation, and nausea. Asthmatics also may encounter difficulties breathing when exposed to the odor. The rabies virus is not transmitted through skunk musk.

Skunk musk is composed primarily of seven ingredients, six of which are sulfur-containing thiols that give the skunk musk its awful smell. Humans can smell skunk musk in concentrations as low as 10 parts per billion.

Deodorizing Treatment

Several tactics should be considered when dealing with skunk odor:

1. Remove the source of the odor.
2. Ventilate the area with fresh air.
3. Wash or apply deodorants to the source of the odor.
4. Use air fresheners to mask residual odor in the air.
5. Use laundry detergent to remove residual odor in fabrics.



Figure 1. Odor from skunks can last several weeks. (Photo by Greg Clements)

Skunk odor (*Figure 1*) may reactivate during periods of high humidity. If the odor doesn’t decrease in a week or two, the skunk may have resprayed or died on the property.

Home Remedies/Over-the-Counter Products

Chemist Paul Krebaum discovered a solution that changes the odorous thiols into odorless acids, thereby chemically neutralizing the skunk odor.

The formula is:

- 1 quart of 3 percent hydrogen peroxide (fresh bottle),
- ¼ cup of baking soda (sodium bicarbonate), and
- 1-2 teaspoons of liquid dish soap.

Ingredients must be mixed in an open container and used immediately. Never mix the ingredients in advance because oxygen released from the solution may cause a closed container to explode. The solution can be used on people or pets; avoid splashing the product in the eyes or mouth. Allow the solution to remain in hair for five minutes before rinsing with water. Repeat as needed. Avoid using this solution directly on clothing as it may discolor the fabric. Add the mixture to the wash during the wash cycle to dilute it.

Never overlook the simple act of taking a shower and washing clothes to mitigate skunk odor. Time and air eventually will remove odors from items. Any cleaning fluid or household chlorine bleach also can be used to remove skunk odor from fabrics. Use these products in separate steps — not together. Test cleansers first on an inconspicuous portion of the fabric before applying to the entire fabric. Soap and water can be used to dissolve the oils in the skunk spray to help remove it from fabrics and other surfaces. Wash laundry items a second time, then hang dry, preferably outdoors. Do not put them in the clothes dryer. Be sure to follow any directions that are specific to washing a particular fabric.

For clothing that cannot be washed or dry-cleaned, such as shoes, suspend them outdoors, allowing fresh air to carry away the volatile thiols. The odor will decrease over time, provided the material is not re-exposed to skunk musk.

For wood or concrete surfaces, mix one cup of bleach to one gallon of water. This method should be used only on the spot where the skunk sprayed. Be aware that bleach may stain surfaces.

A variety of odor control products are available in area stores, including Skunk-Off[®], Odor-Mute[®], Nature's Miracle Skunk Odor Remover[®], and Earth Friendly Products[®]. Homeowners also may find the following products helpful in deodorizing their property. With any product, always abide by label instructions.

Professional Products

The following items have good reputations for successfully mitigating odors, particularly in difficult situations. They are more costly, and we caution readers to consider over-the-counter remedies (particularly Krebaum's formula) before trying these products.

Neutroleum Alpha[®] masks skunk odor with a smell described as “minty.” Use it directly on surfaces. It also can be used as an air deodorizer by suspending napkins that have been dipped in the product. One application usually is sufficient. Consumers have reported that Neutroleum Alpha also can be used to deodorize washable items at a rate of one ounce per two gallons of warm water. Neutroleum

Alpha has toxic and irritating properties. Use the product in well-ventilated areas and avoid direct contact with skin and mucous membranes. Wear chemically resistant gloves (vinyl if allergic to latex) when mixing the solution. The product dissolves best in warm water. Use only freshly made solutions and dispose of any leftover product according to the guidelines on the label. Unmixed Neutroleum Alpha must be stored in a cool, dark environment to prevent fire hazards. Neutroleum Alpha can be ordered from the Pocatello Supply Depot (U.S. Department of Agriculture — Wildlife Services) in Idaho (208) 236-6920.

Freshwave[®] is the retail name of the industrial deodorant known as Ecosorb[®]. Freshwave captures malodorous compounds and chemically neutralizes them. It can be sprayed on affected surfaces and repeated as needed. Freshwave does have a slight odor that has been described as “tea tree” in nature. For lingering odors in a room, pour the product in a wide-mouthed jar and allow it to spread into the air. Use a fan to hasten the process. Freshwave also is available as a gel or candle for slow dispersal. Use appropriate fire precautions with candles. Freshwave, being comprised of plant oils, has few safety warnings, but avoid splashing product in the eyes. Freshwave[®] is available at the company's website fresh-wave.com/. Ecosorb can be purchased from the Pocatello Supply Depot (U.S. Department of Agriculture — Wildlife Services) in Idaho (208) 236-6920.

Epoleon[®] manufactures a number of odor-neutralizing products suitable for skunk deodorizing. **N-100** has received good reviews for its ability to neutralize skunk odor. Epoleon is a water-based neutralizer of organic odors. It has no scent. Epoleon N-100 is sold as a concentrate and must be diluted in water before use. The manufacturer suggests a ratio of 1 part Epoleon to 20 parts water, up to a 1-5 ratio, depending on need. The diluted chemical then can be sprayed or atomized. The product will leave a slight residue as the water evaporates. Wipe down surfaces with fresh water following use. Use Gel-500 for use in enclosed spaces with no airflow. For a stain-free treatment, consider Epoleon NnZ. Simply wipe down surfaces with a wet towel to gather up any remaining product. The chemical has a very slight odor. Epoleon can be used in a variety of settings, except where food is prepared. Epoleon products, including a premixed, ready-to-use product in a spray bottle called PC-300, can be purchased from the manufacturer at epoleon.com or (800) 376-5366.

Nisus[®] Bac-Azap[®] is a commercial grade deodorizer that combines alcohols, enzymes, bacteria, and a fragrance to encapsulate, degrade, and cover organic odors. The product can deodorize a variety of surfaces, including those contaminated with dead animals. Bac-Azap also can be applied in various strengths and in various ways, including directly, diluted, foam, and fog. Do not apply the product in areas where it might contact food or food preparation surfaces. To learn more about the product, contact the company at nisuscorp.com/ or (800) 264-0870.

Removing Dead Skunks

Skunk odor typically declines in intensity over several weeks. If the odor does not decline and actually gets stronger, it is likely that skunks are living or may have died on the property. Please note that periods of high humidity will make skunk odor “reappear” or seem stronger even when no new sprays occur. In addition, skunks don’t repeatedly spray walls. Frequent occurrences of skunk sprays on one’s property suggest a family of skunks have taken up residence, especially during spring or during the February-March breeding season. If a faint odor of skunk persists in the home after a few deodorizing treatments, check the furnace/air conditioner air filter as it will need to be replaced if it has been contaminated with skunk odor.

The presence of skunk odor followed by a substantial increase in odor level and persistence indicates that a skunk has died on the property. Inspect decks, sheds, window wells, and other covered areas where skunks might reside. Fiber optic scopes can be helpful in finding the skunk under low decks.

Removal of the skunk carcass is necessary to rapidly reduce the odor. Since rabies remains infectious until the skunk is thoroughly decomposed, it is essential to protect yourself with gloves (latex or vinyl inside of leather working gloves), a long-sleeve shirt and pants, and eye protection. A simple dust mask is strongly recommended to prevent any contaminated material from entering one’s mouth. Use a shovel to scoop up skunk remains. Remove some soil around the skunk and a few inches below the skunk. Place materials in heavy-duty trash bag, double bag, and dispose according to local regulations.

Spray the location with a deodorant of your choosing. If the skunk died in a location where human or animal contact is likely (e.g. indoors), then it may be advisable to sanitize the location to reduce the chances of infection. Understand that no single disinfectant kills every potentially hazardous organism. When applying disinfectants be aware that many disinfectants can contaminate water supplies and harm people if misused. The following are some products suitable for reducing infectious organisms at a location. For best results, remove as much of the organic material as possible before treatment.

Bleach. Spraying the area (wetting only) where the skunk was found with a bleach solution (10 percent bleach with 90 percent water) will kill a variety of organisms, including the rabies virus.

Nisus® DSV™ is a commercial sanitizer used to disinfect surfaces of a variety of organisms, including various strains of fungi, bacteria, and viruses. It also has some deodorizing capabilities, but this is a secondary quality. The label allows it to be used in many settings. Applicators must wear goggles, rubber gloves, and protective clothing. To learn more about the product contact the company at nisuscorp.com/ or (800) 264-0870.

Electric Foggers/Atomist Sprayers

Sometimes skunk odor is so dispersed that fogging a deodorant is necessary to cover a large area. Atomizers, by

converting the deodorant solution into fine mists, provide two key advantages for odor control over hand-pump sprayers. First, atomizer small droplets stay airborne longer, thereby circulating throughout the treatment area. The tiny nooks and crannies present in basements and crawl spaces can be completely treated by exploiting natural air movements. Second, smaller droplets enable the deodorant to be more efficient so that less product is needed to achieve desired results. As a rule of thumb, 16 ounces of neutralizing deodorant solution, atomized with a droplet size of 15 microns, can deodorize a 1,500-square-foot residence.

Several foggers are available (*Figure 2*). Consider the following to determine the type that will best suit your needs.

1. Portability — Evaluate the weight, balance, and power source.
2. Versatility — Use a flexible spray hose to direct the fog to different areas of the room.
3. Cost — Foggers can be rented or purchased for less than \$100.



Figure 2. Fog Master Junior. (Photo by Wildlife Control Supplies, LLC)

Deodorizing Techniques to Avoid

1. Ozone generators sometimes are marketed as having deodorizing abilities. Studies have raised significant questions regarding their safety and effectiveness.
2. Ion generators or ionizers dispense negatively or positively charged ions into the air to encourage odor-laden dust particles to cluster and fall to the ground. Research has shown that high efficiency particle filters do a better job at removing dust from the air.
3. Never mix deodorants with other chemicals or products unless label directions specifically permit it.

4. Many home remedies, such as tomato juice, are touted as effective in deodorizing skunk odor. Unfortunately, research is unavailable on the effectiveness of these products. For example, tomato juice is ineffective in neutralizing skunk odor. Users assume that tomato juice works because the odor of tomatoes replaces the odor of the skunk. What actually occurs, however, is that the nose is so overwhelmed by the skunk odor that it actually stops recognizing it; a condition known as olfactory fatigue. Then when the new odor of tomato juice is introduced, the nose “smells” it, leading the person to think that the tomato juice worked.

General First-Aid Tips

First-aid guidelines often are included with product use directions. Be sure that you and those around you are familiar with the guidelines before preparing and using the product. Keep the product container/label/instructions handy in case you need to reread the safety information. If a poisoning event has occurred, contact your local physician, emergency services, or the Poison Center at (800) 222-1222 immediately. The following information contains basic protocols for properly handling common poisoning events until medical personnel arrive.

If someone is experiencing headaches, nausea, fatigue, or difficulty breathing, immediately move the individual into an area with fresh air. Seek medical advice. Remove clothing soaked with deodorants and flush exposed skin with clean water for 15 minutes to prevent chemical burns. Flush eyes that are exposed to caustic deodorants for 15 minutes with clean water. Use warm water if available. While flushing, make sure runoff water does not contaminate the unaffected eye. For more control, pour water from a large cup held 2-4 inches above the affected eye. Have someone else call for emergency assistance during the flushing process. If deodorants are ingested call the Poison Center at (800) 222-1222 for detailed instructions. Do not encourage vomiting or give fluids without label or medical recommendation.

Cautions

1. Some deodorants contain toxic materials and may cause adverse reactions in people sensitive to the ingredients. Thus all chemicals, whether natural or synthetic, should be used in a manner that reduces exposure. Special care should be taken to avoid exposing children, pets, and plants to chemicals. Remove or secure foodstuffs and food preparation areas whenever possible to prevent chemical contamination.

2. Read and follow all product label directions and warnings. It is preferable to use deodorants in ventilated areas.
3. Some products may discolor fabrics and other materials. Always test the product on a less noticeable area prior to treating more visible areas.
4. Multiple deodorant treatments may be needed, whenever odors penetrate porous surfaces, such as Sheetrock, concrete, or unpainted wood. Sometimes removal of contaminated materials will be the only solution.

Summary

Removing skunk spray from clothing or the environment can include deodorizing treatments, home remedies, and multiple commercial products including foggers and deodorizers.

Acknowledgment

The authors would like to thank the members of The Wildlife Pro Network (*wildlifepro.net*) and Reginald Murray of Oklahoma Wildlife Control, LLC for their assistance.

Resources

Wood, W. F. 1999. The History of Skunk Defensive Secretion Research. *Chemical Educator* 4:44-50.

This publication has been peer reviewed.

Disclaimer

Reference to commercial products or trade names is made with the understanding that no discrimination is intended of those not mentioned and no endorsement by University of Nebraska–Lincoln Extension is implied for those mentioned.

UNL Extension publications are available online at <http://extension.unl.edu/publications>.

Index: Wildlife Management Wildlife Damage Control

Issued September 2011

Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska–Lincoln cooperating with the Counties and the United States Department of Agriculture.

University of Nebraska–Lincoln Extension educational programs abide with the nondiscrimination policies of the University of Nebraska–Lincoln and the United States Department of Agriculture.

© 2011, The Board of Regents of the University of Nebraska on behalf of the University of Nebraska–Lincoln Extension. All rights reserved.