

Dealing With Skunks and Odor Abatement

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Undoubtedly the most recognizable wildlife species in Arkansas is the skunk. Arkansas is home to two species, the striped skunk (*Mephitis mephitis*) (Figure 1) and the eastern spotted skunk (*Spilogale putorius*) (Figure 2). Skunks are members of the weasel family and are well known for the pervasive odor they spray when provoked. Both species occur statewide, though the striped skunk is more common. The spotted skunk is considered a species of concern because of its declining populations, though it can be locally abundant. Spotted skunks occur primarily in the Interior Highlands of the state.

Several skunk behaviors cause problems when encountering people.

- **Burrow under homes.** Skunks dig their own burrows or use burrows abandoned by woodchucks, armadillos or foxes. Normally, they prefer burrows under rocks or wood piles, rock crevices, culverts or fallen hollow logs. They will den under old outbuildings, home foundations or porches. These burrows can serve as year-round homes for nesting and escape from winter cold. Although typically solitary, many skunks may inhabit a nesting or winter burrow.
- **Dig holes in lawn.** Particularly during summer and fall, skunks dig 1- to 3-inch cone-shaped holes in search of insects such as white



Figure 1. The striped skunk consumes white grubs, worms, grasshoppers, wasps, bees, crickets, beetles and beetle larvae. In the winter and spring, they eat mice, young rabbits, moles, voles and other small mammals. (Copyrighted photo printed with permission by Eric Dresser.)



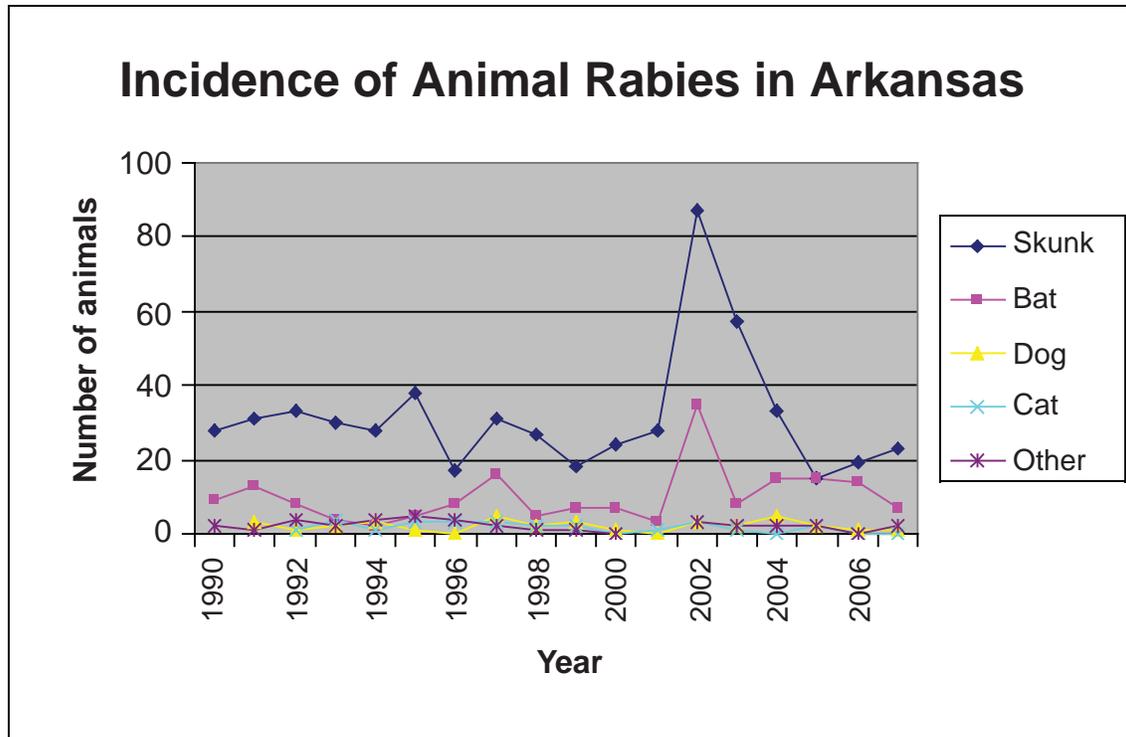
Figure 2. This eastern spotted skunk caught in a live trap is a protected species in Arkansas. (Photo by Janalee Nelson, U.S. Park Service.)

grubs and worms. They also eat grasshoppers, wasps, bees, crickets, beetles and beetle larvae. In winter and spring, they eat mice, young rabbits, moles, voles and other small mammals. Spotted skunks are known to be good mousers and will rid a barn of

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Table 1. Number of Animals Testing Positive for Rabies in Arkansas, 1990-2007
(Arkansas Department of Health)



rats. Skunks will also eat garbage and carrion. Skunks can climb to eat fruit, eggs or songbird nestlings. To a small extent, they eat corn, nuts, small lizards and snakes. Where poultry are raised, they can eat chickens and chicken eggs.

- Produce an odoriferous spray.** Striped skunks mate from late February to March, while spotted skunks mate in late March to April. Males use their scent glands to defend their territory and attract mates. They will spray when cornered, trapped or frightened. Younger skunks are more likely to spray than older skunks. Typically, skunks will give warnings before spraying. These warnings include jumping, stamping their front feet, arching their back, shuffling backwards, charging with their tail raised, clicking teeth, growling and hissing. Spotted skunks will do handstands as a warning and can spray while in this position if necessary. The spray of spotted skunks is more pungent than striped skunks, but fortunately they are less likely to spray and will climb when threatened.

When preparing to spray, skunks lift the tail and make a U shape with their bodies so that both their head and tail are directed at their target. Skunks are known to accurately spray their target up to 10 feet and can reach a distance of

16 to 20 feet. A skunk can control the amount of spray emitted and can spray five to eight times before needing to recharge, which can take a week. They can spray in a fine mist or a stream covering an arc of 30 to 45 degrees. This odor can be carried for a mile or more.

- May have rabies.** In Arkansas, skunks account for most of the reported rabies cases (Table 1). In 2007, skunks were responsible for 70 percent of all rabies cases in the state. Those encountering skunks during a rabies epidemic in the late 1970s reported rabid skunks were solitary, aggressive or unafraid and were found around buildings during daylight hours. Because skunks are mostly nocturnal, caution is advised when encountering a skunk during daylight hours. However, not every skunk seen in daylight is rabid, and skunks carry other diseases such as canine distemper. Because of the potential for rabies transmission, it is illegal to transport skunks into or out of the state.

Preventing Problems

When skunks are around, take these actions to prevent problems from occurring.

- Do not feed skunks.** Do not leave dog or cat food outdoors (Figure 3). If feeding pets outdoors, provide only enough food for pets to eat in one

sitting. Skunks that are fed tend to lose their fear of humans. Feeding concentrates skunks and increases the chance of spreading rabies and other diseases.



Figure 3. Removing uneaten pet food at night can prevent problems with skunks. (Copyright, 2006, Board of Regents of the University of Nebraska for and on behalf of the University of Nebraska-Lincoln <ICWDM.org>.)

- **Prevent access to denning sites.** Close off all entries except the main entrance with boards, metal flashing, concrete or ¼-inch hardware cloth securely attached and buried in an “L” shape. (Throwing some bricks in the burrow won’t work. See additional examples in the next section, “Install digging barriers.”) Place a removable board in front of the one remaining entry, and scatter flour (or sand, sifted dirt or talcum powder) in front of the hole. Close the hole after nightfall when skunks have left. Open again the next morning so that any remaining skunks can leave. Close the entry again after nightfall and scatter flour. Repeat until no tracks appear in the flour and all the skunks have left. (It is important that no animals are trapped inside for both ethical and health issues stemming from odor and decay problems from a carcass.) Other options to consider are:
 - Try flooding the burrow to move skunks from underneath a home or porch (if this won’t cause a problem with the foundation or support structure). Use a garden hose to thoroughly water the entryway and the tunnel.
 - Instead of the removable board, install a one-way door made of ½-inch hardware cloth that is attached over the opening, hinged at the top and left loose on the other three sides. It should be larger than the opening so that the door will not swing inward. The skunk will push it open to leave but cannot re-enter. Continue using flour to check for animals trapped inside. (Other animals, such as raccoons, can get through this door.)
- **Install digging barriers.** To prevent digging under concrete slabs, decks, chicken coops and other features, construct one of the following:
 - Lay large flat stones, concrete patio pavers or ¼-inch hardware cloth (held in place with stakes) on the surface of the soil next to a concrete slab or wall. This barrier forces the animal to begin digging farther out, and they will most likely give up.
 - Bend hardware cloth into an “L” shape, and lay it in a trench so that the wire goes at least one foot below ground and one foot out from the concrete slab.
 - Excavate a 3- x 3-inch trench alongside a slab or wall, and hammer 2-foot lengths of rebar spaced a few inches apart into the ground to create an underground “fence.” Cover the tops with concrete or dirt.
- **Remove shelter.** Remove brush piles, lumber piles and rock piles where skunks might live or hide.
- **Secure ducks and chickens.** A skunk might dig to get into a chicken coop. They may kill one or two chickens; so if more are found, another predator might be to blame. Skunks eat eggs by opening one end with the edges crushed inward. They can’t easily carry eggs. The shells from the eaten eggs will be found less than a yard from the nest. Other predators typically leave egg shells farther from the nest.
- **Protect pets.** To keep pets from being sprayed, keep them inside at night.
- **Prevent lawn damage.** Well-manicured lawns often support a host of worms and grubs under the sod that attracts skunks. Using pesticides to kill grubs is not recommended because skunks will continue digging for worms and other insects anyway, plus the pesticide has a toxic effect on the environment. An option is to lay down 1-inch mesh chicken wire secured with stakes to protect specific areas from skunks. Another option is a temporary, single strand of electric wire 5 inches above ground. A third option is to construct a 2-foot tall chicken-wire fence. Support the fence with stakes every 4 to 6 feet. Stake the bottom of the fence flush to the ground, and put bricks or other heavy objects along the bottom. Or create an “L” shape with the lip facing the skunk’s side and secure with stakes or rocks. For spotted

skunks, create a floppy fence constructed the same way except the fence should have some “give” between stakes and lean slightly toward the skunk’s side. When the spotted skunk tries climbing, the wire should wobble and discourage the skunk from climbing.

Trapping Nuisance Skunks

If exclusion doesn’t work or isn’t feasible, live traps can be used to remove skunks from under a home. Although trapping and transporting a skunk seems risky, it’s a proven, effective method, particularly when the trap is completely covered. According to Game and Fish Commission regulations, each trap needs to be labeled with a legible name and address and vehicle operator’s license number or current vehicle license number (registered to the trap user).

Another option is to hire a nuisance wildlife control operator to live trap and remove skunks. A listing can be found on the Arkansas Game and Fish Commission’s web site <www.agfc.com>. Select the “Wildlife and Conservation” category on the home page, then click “Nuisance Wildlife.”

Trap designs for building your own homemade live trap are found on pages 7 and 8 of this publication. Wire cage traps can also be purchased. A 9- x 9- x 24-inch size trap (with one door) is better primarily because larger, non-target species are less likely to be trapped plus the cage is easier to handle.

Be sure to wrap wire cages with a tarp or burlap, or tape cardboard securely around the trap (leaving space for the handle) to keep the skunk from becoming startled and spraying. Place the trap so it faces the entry hole of its burrow. Optionally, place wood or cardboard on each side of the hole to lead the skunk into the trap. Block any other holes so the skunk is forced to enter the trap (Figure 4). Check the trap in the morning and early evening. Repeat this process until no more skunks are trapped (which could be six



Figure 4. To remove skunks from under homes, live traps can be set at the burrow entrance with barriers so that a skunk has no choice but to enter the cage. (Copyright, 2006, Board of Regents of the University of Nebraska for and on behalf of the University of Nebraska-Lincoln <ICWDM.org>.)

or more), then seal holes. Baiting the trap increases the odds of non-target species being captured. If baiting is necessary, use fish-flavored cat food, peanut butter, sardines or chicken entrails.

Once the skunk is captured, approach slowly and lay a tarp or other covering over the open side so the skunk is unable to see. Gently lift the cage and avoid sudden movements or loud noises. Place in the back of a pickup truck and transport at least 5 to 10 miles into a habitat away from human dwellings. As an extra precaution, stand more than 20 feet away and release the trapdoor using a string or fishing line.

Instead of picking up and moving the trap to the truck bed, another option is to gently drag the trap using two 6-foot lengths of nine-gauge wire with a hook on each end attached to each side of the trap. (This works best for traps that have been wrapped in cardboard.) Gently pull the trap along the ground toward the pickup. Gently pick up the cage and place in the bed of the pickup to haul away.

Legal Aspects

As of publication date, Arkansas Game and Fish regulations allow striped skunks and spotted skunks to be trapped and relocated year-round without a nuisance depredation permit. Regulations state that property owners in incorporated towns or cities may use live traps for removing nuisance wildlife if allowable by the town or city. Arkansas Game and Fish requires that captured nuisance wildlife be released alive and unharmed outside the municipalities’ boundaries within 24 hours after capture.

In rural areas, Arkansas Game and Fish regulations allow shooting of striped skunks causing nuisance problems during daylight hours. Note that skunks that are shot typically release their musk, which may attract other skunks particularly during the mating season in February and March. Striped skunks can be legally hunted during furbearer season with a valid hunting license.

Spotted skunks are a different matter. It is illegal to hunt spotted skunks or destroy them without a nuisance wildlife permit.

Primarily because of rabies issues, it is illegal to keep skunks as pets in Arkansas.

Direct any questions about wildlife regulations to your county wildlife officer.

Odor Abatement

The odor-bearing fluid, or musk, is amber in color, oily and slightly volatile (which chemically speaking, means it stays around a long time). The musk can temporarily blind and stun those who are sprayed in the face. Other symptoms are watery eyes, nasal irritation and nausea. Asthmatics may also experience breathing problems.

If nothing is done, the odor can last two to four months. Bathing in tomato juice has been the standard remedy for skunk odor. However, chemically tomato juice does nothing to neutralize the odor. After a while, the nose blocks out the skunk odor due to “olfactory fatigue,” which tricks the nose into smelling the tomato juice instead of the skunk odor. Following are several products developed to reduce skunk odor on people, pets, in homes and on clothing that work either chemically or mask the odor.

Homemade Solution

If a person or pet is sprayed, take action quickly to remove the odor. If spray enters the eyes causing irritation or temporary blindness, first flush the eyes with cold water. Then apply the following homemade remedy, which was first reported by chemist Paul Krebaum of Lisle, Illinois, for use on pets.

- One quart of fresh, 3 percent hydrogen peroxide solution (use fresh, old hydrogen peroxide turns into water)
- ¼ cup of baking soda (bicarbonate of soda)
- 1 or 2 teaspoons of liquid dishwashing soap that is known for its degreasing qualities, or liquid laundry soap

The first two ingredients form an alkaline peroxide that chemically changes the musk into sulfonic acid, an odorless chemical. The soap breaks down the oily skunk essence and makes it more susceptible to the chemicals. The mixture must be used after mixing and cannot be stored. Although the chemicals in this formula are harmless, be cautious and keep away from the eyes, nose and mouth of people and pets. Do not use on clothing – it may discolor the fabric.

Always mix this solution in a large, open container. Do not put in a closed container or store because it may explode. The mixture will bubble because of the chemical interaction. Use the entire mixture while it is still bubbling. Wear rubber gloves, apply the solution, work it into a lather and leave it on for 5 minutes or longer until the bubbling ceases. Make

sure to remove jewelry, as skin may be sensitive to the chemical reaction with metal. When washing a dog, wash the body first and then the head to keep the dog from shaking off the mixture. If odor still remains, repeat two or three times. Then treat with normal shampoo. Do not use heat, such as a hair dryer, as this can cause the remaining skunk oil to set in on hair, fur or skin. People can take a shower between treatments to further remove the odor.

Household Treatments

If the odor is inside or under the crawlspace of your home, the area will need to be thoroughly aired. Using fans will help. Wash or apply deodorants to the source of the odor. Use air fresheners to mask residual odor in the air. If the odor is indoors, change the air filter for the furnace/air conditioner as odors may be trapped in the filter and recirculated. Multiple deodorant treatments may be needed whenever odors penetrate porous surfaces such as wallboard, concrete or unpainted wood. Sometimes removing contaminated materials is the only solution.

Many odor control products are available in stores selling home repair and/or pet products, including Skunk-Off[®], Odor-Mute[®], Nature’s Miracle Skunk Odor Remover[®] and Earth Friendly Products[®]. These products can be purchased on the Internet as well. Note that these products are recommended for use only on inanimate or non-living objects.

Neutrolem Alpha[®] masks skunk odor with a “minty” smell. It can be used directly on surfaces or as an air deodorizer by suspending napkins dipped in Neutrolem Alpha[®]. This product has toxic and irritating properties, so use caution. Use in well-ventilated areas, and wear chemically resistant gloves when mixing the solution in warm water. Read and follow label directions. Use only freshly made solution, and dispose of the leftover product. Store in a cool, dark environment to prevent fire hazards. Neutrolem Alpha[®] can be ordered from online stores or at the Pocatello Supply Depot (U.S. Department of Agriculture – Wildlife Services) in Idaho (208-236-6920).

Freshwave[®] (also called Ecosorb[®]) captures odorous compounds and chemically neutralizes them. It is derived from plant oils and has a slight odor described as “tea tree.” It can be sprayed on surfaces or poured in a wide-mouth jar and allowed to permeate the air. Using a fan will help the process. Freshwave[®] is also available as a gel or a candle and can

be purchased from many local retailers. Ecosorb® can be purchased from the Pocatello Supply Depot (U.S. Department of Agriculture – Wildlife Services) in Idaho (208-236-6920).

Epoleon N100® reportedly works very well in neutralizing skunk odor. Epoleon N100® is a water-based neutralizer sold as a concentrate. One professional who has used the product suggests a ratio of one part Epoleon N100® to 20 parts water, or up to a 1 to 5 ratio depending on the strength of the skunk odor. The diluted chemical can then be sprayed or atomized. A slight residue will be present after it evaporates. Simply wipe down surfaces with a wet towel. Half-gallon quantities can be purchased from the manufacturer (800-376-5366) or from Wildlife Control Supplies LLC (877-684-7262). Eight-ounce ready-to-use spray bottles can be purchased from Apptec, Inc. (800-698-6367).

Sometimes the skunk odor is dispersed over such a large area that atomizing or fogging is necessary. Atomizers convert the deodorant solution into a fine mist. Small droplets will circulate throughout the area and enter small nooks and crannies. Another advantage is that less product is used. 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. Purchase a fogger based on weight, balance and power source. Find one with a flexible spray hose to direct the fog to different areas of the room. Rather than purchasing a fogger, renting one is an option.

There are several homemade treatments that can also be tried. A mixture of one part vinegar to four parts water can be sprayed or scrubbed on surfaces. Another is to lightly boil one quart of vinegar and simmer for an hour or two. Close all windows and turn off the air conditioner or heater while vinegar is boiling. Another method is to bake a common clay brick in the oven for 30 minutes. Place it in a coffee can and cover with used coffee grounds which absorb the odor.

Clothing Treatments

Clothing can be soaked in a weak solution of chlorine bleach (10 percent bleach, 90 percent water), ammonia or vinegar then washed in a strong soap, a heavy-duty laundry detergent or borax. Note that these products may lead to staining or discoloration, so check the label on your clothing. Test cleansers first on an inconspicuous portion of the fabric before applying to the entire item.

Use cleaning fluids and household chlorine bleach in separate steps – not together. (Chlorine bleach mixed with other liquids or airborne with other chemicals may result in toxic fumes.) Customers report using Neutroleum Alpha® on washable items at a rate of one ounce per two gallons of warm water.

Air-drying clothing for an extended length of time will eventually remove the odor. For clothing that cannot be washed or dry-cleaned, hang items outdoors in fresh air. The odor will decrease over time.

If clothing has been heavily sprayed, the best option may be to discard or burn it, because the fabric will hold the odor a long time.

Cautions

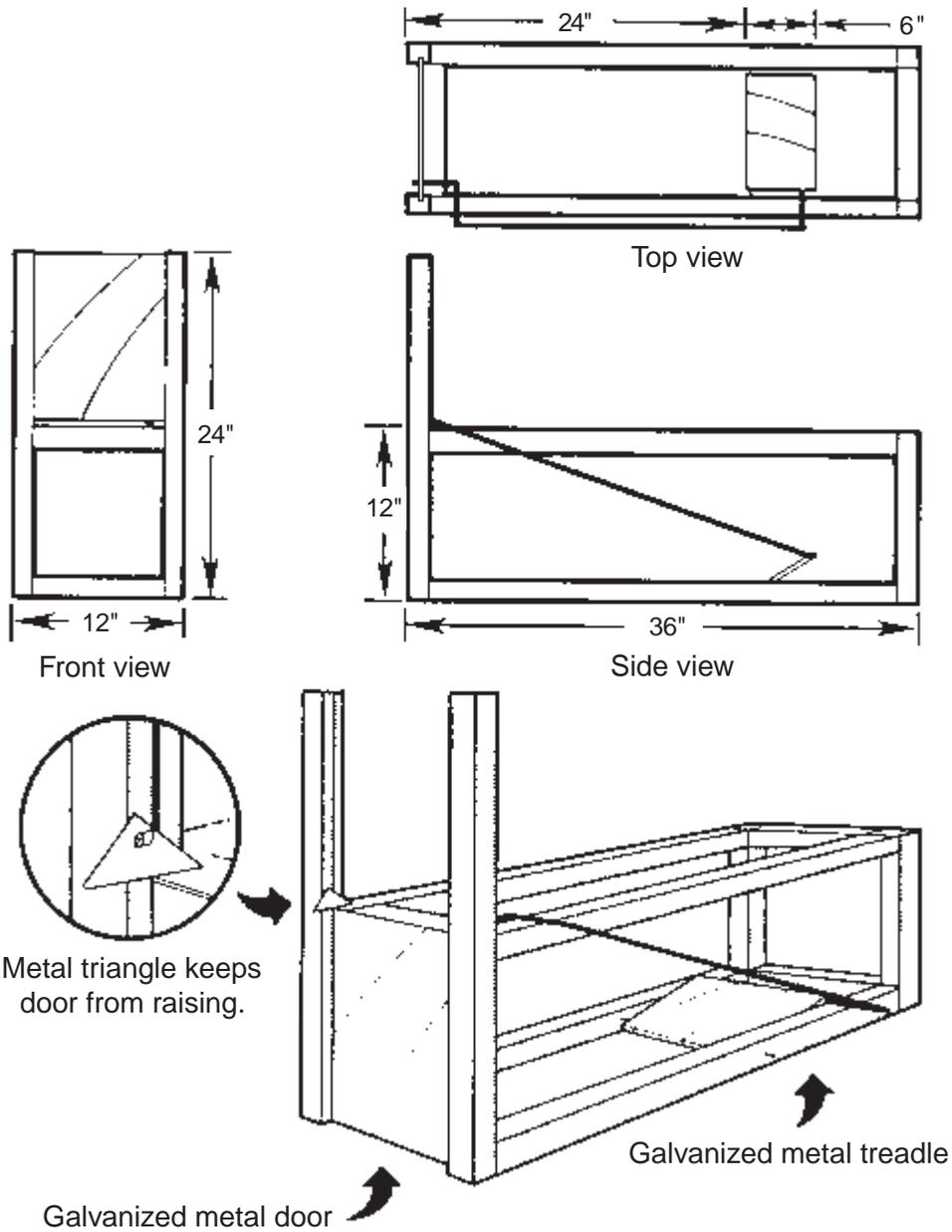
Be careful when using deodorants with toxic materials. Read and follow all product label directions and warnings, and use in well-ventilated areas. These chemicals may cause adverse reactions in people sensitive to the ingredients. Therefore, all chemicals, whether natural or synthetic, should be carefully used in a way that limits exposure particularly to children, pets or plants. Make sure food and food preparation areas are protected from chemicals when possible. Keep toxins in a safe and secure place. If poisoning occurs, contact your local physician, emergency services or the Poison Center (800-222-1222) immediately.

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Appendix 1. Skunk trap design for a box or cage trap.

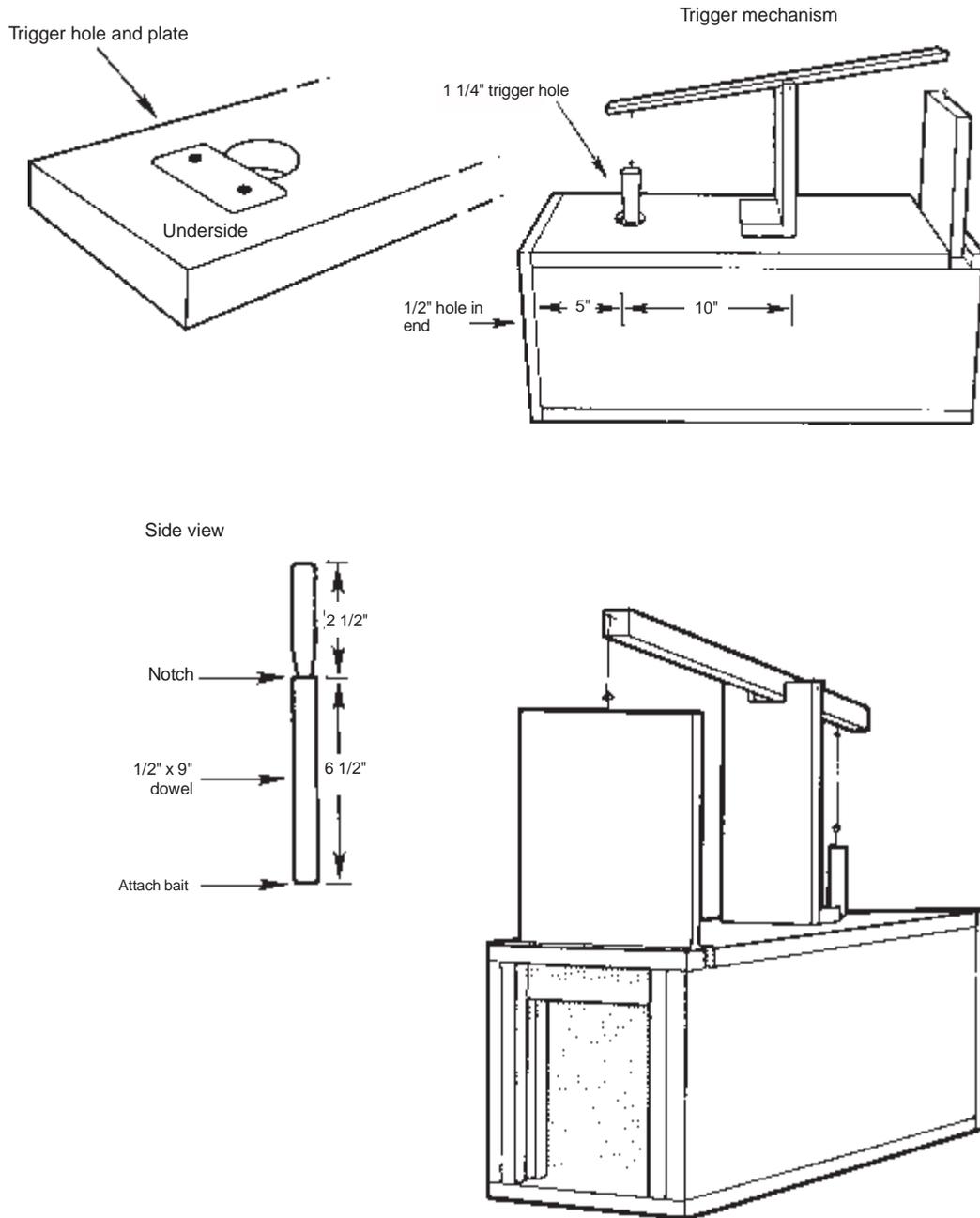
(Illustration from *Prevention and Control of Wildlife Damage*, 1984.)



A box trap can be easily built using scrap lumber and small-mesh, welded-wire fencing.

Appendix 2. Alternate design.

(Illustration from *Prevention and Control of Wildlife Damage*, 1984.)



Reference to commercial products or businesses is made with the understanding that no discrimination is intended and no endorsement by the University of Arkansas is implied.

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