COLLEGE OF AGRICULTURAL, CONSUMER AND ENVIRONMENTAL SCIENCES

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Animal Sciences and Natural Resources

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. . . not a creature was stirring, not even a mouse

By Samuel T. Smallidge, Extension Wildlife Specialist

Whether they are stirring or not, rodents in the home leave characteristic signs that will help you determine if you have a rodent infestation and its extent. With about 2300 species worldwide, rodents make up nearly 40% of all mammal species. The probability that you will encounter a rodent problem at some point in your life is high. While we focus on rat and mice infestations in the home, techniques discussed here apply generally to any structure and rodent species. Rodent abundance is usually high before you see a rodent. Rodents seek what every other wildlife species seeks, food, water, and shelter (or harborage). These three components make up habitat and managing them will help you mitigate your rodent problem. Understanding what to look for in identifying a rodent infestation and conducting an inspection is the first step.

Inspection

Figure 1. Rodent droppings along back of sink and in sink of a vacant trailer.

Begin inspecting for rodents by looking for signs of their presence. Look for rodent droppings (Figure 1) in and around areas where human or animal foods are prepared and stored. Inspect kitchen drawers, cabinets and under sinks throughout the house. Don't forget to look under the dishwasher, stove, refrigerator, washer and dryer. Look for gnaw marks on food packages and wood and plastics in these areas. Nesting materials may also be observed and often include shredded paper, fabric, dried plant material and even insulation from around pipes or exterior walls. Check for gnaw marks or other signs of rodents where pipes penetrate through walls or cabinets. Inspect floor vents and areas where the baseboard is more than 1/4-inch above the floor and look for rodent signs. If you want to inspect more thoroughly, purchase a cheap UV flashlight and shine these areas for the characteristic fluorescence of rat and mice urine. They appear as small dried puddles near the wall or in corners. Be aware that many cleaning agents with brighteners are fluorescent. Strange smells may indicate rodent presence. Rodent nests emit a stale and musty ammonia-like smell; once you have experienced the smell you are unlikely to forget. When sitting still, you may hear movement or gnawing sounds inside the home. Quietly approach the area and attempt to identify where it is coming from and look for the signs discussed in this paper.

Conduct inspections for rodent signs around the exterior of the home in similar fashion to inspecting inside the home. Focus on the foundation and penetrations from electrical, natural gas, and water pipes, cables and wires as well as windows, doors and vents into the house. Inspect the roof, gables, and eaves

as well. If you find any signs of rodents, rest assured you have a rodent infestation –the question is just how bad and what to do about it?

Mitigation (Seal Up— Trap Up – Clean Up)

Mitigating rodent infestations requires systematic and often repeated effort to succeed. The basics of rodent mitigation include sanitation, exclusion and removal. Rodents transmit disease, therefore, special precautions are necessary to safely mitigate rodent infestations. The Center for Disease Control promotes this concept with an easy to remember phrase; *seal up, trap up and clean up*.

Seal Up

Seal up penetrations between exterior and interior walls first. Mice can fit through small gaps just over ¼-inch and rats fit through gaps less than one-inch. You may wish to seal penetrations between interior walls – this impedes rodent travel inside the home. It is recommended to use copper mesh or woven stainless steel mesh over traditional steel wool. These products are more expensive than steel wool, but last much longer as steel wool is prone to rusting. Hold the mesh in place with caulking or rodent resistant expanding foam. If using expanding foam, make sure it is labeled at least as rodent resistant. Larger holes on the inside and outside of walls may be covered with quarter-inch hardware cloth, aluminum flashing or cement. Gaps in trailer skirting also need to be sealed. Patch any cracks or holes larger than ¼-inch in the exterior surfaces of your home. Caulk around window and door jams and trim. Rodent resistant door sweeps and garage door seals are available online. After sealing gaps, occasionally inspect these areas for rodent signs to ensure your efforts were effective.

Trap Up

Prior to trapping, sealing out rodents and inhibiting their travel in the house is recommended. If you do not, new rodents will simply move into recently vacated spaces. Select a snap trap appropriate for the rats or mice you wish to trap. Wear disposable nonabsorbent gloves when handling traps. You may also wish to purchase a small jar of peanut butter dedicated to rodent trapping and label it to prevent exposure to others. Smear a pea-sized glob onto the trap pan and set the trap. Place the trap with the baited pan next to the wall so that the wall and trap form a "T" shape (Figure 2-A). Gang setting traps may improve capture success (Figure 2-B) and traps may be slid behind refrigerators or large furnishing with a broom handle as shown in Figure 2-C. Do not place traps in corners. Place traps in areas with rodent signs that are not frequented by humans. Rats are wary and it may take several days for rats to approach newly placed traps. At the same time you are trapping inside, consider trapping outside and in nearby outbuildings or other areas where rodents may find shelter.

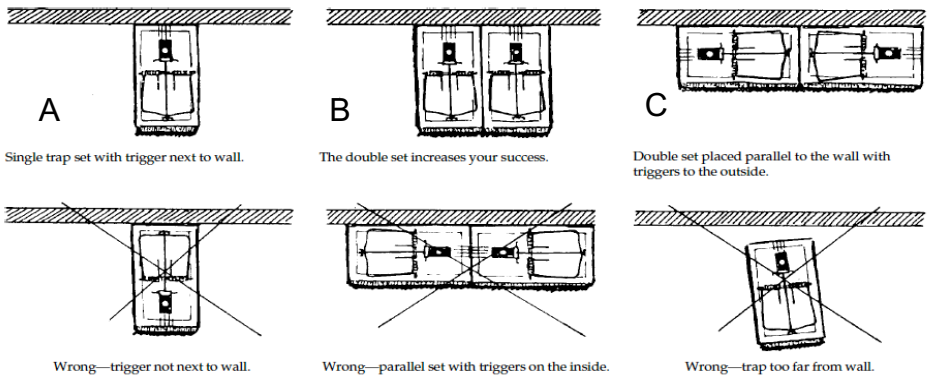

Figure 2. Proper trap placement improves capture success of rodents. Place traps as shown here. Image excerpted from the 1994 Prevention and Control of Wildlife Damage handbook.

Cleaning Traps

New Mexico has more cases of hantavirus than any other state (Figure 3) and with a mortality rate of about 37 percent, it is important to take precautions. Wearing personal protective equipment and practicing good hygiene are essential in protecting against exposure to diseases. There are simple steps you can follow to minimize the chance of exposure when trapping rodents.

First, collect the appropriate materials to safely handle and dispose of the trapped animal. You will need a non-aerosol spray disinfectant; disposable (or reusable) rubber, vinyl, latex or nitrile gloves; plastic bags and disposable paper towels. Disinfectants should state on the label that they kill viruses or you may choose to mix a 10% bleach solution to kill potential viruses. A 10% bleach solution is only effective for about 24-hours after being mixed and must be remixed after 24-hours. Because of hantavirus, some people choose to dispose of the trap with the trapped mouse or rat, others choose to reuse traps. Take the following steps to safely dispose of trapped dead rodents.

1. Spray the dead rodent, trap and immediate area with the disinfectant. Wait the prescribed amount of time recommended on the label or 10 minutes with 10% bleach solution.
2. After the recommended time, place the trap and rodent in a plastic bag.
3. Wipe up the area immediately around the trap with paper towels and place in the plastic bag.
4. Remove disposable gloves and place in bag and zip or tie the bag closed.
5. Place the bag in a second bag and seal.
6. Throw the bag away.
7. Wash your hands thoroughly with soap and water.

If you wish to reuse the traps, remove the rodent from the trap and place it in the bag (see step 2). Now spray the entire used trap with disinfectant and allow to dry before reusing. If you use reusable gloves you must disinfect the gloves prior to storing.

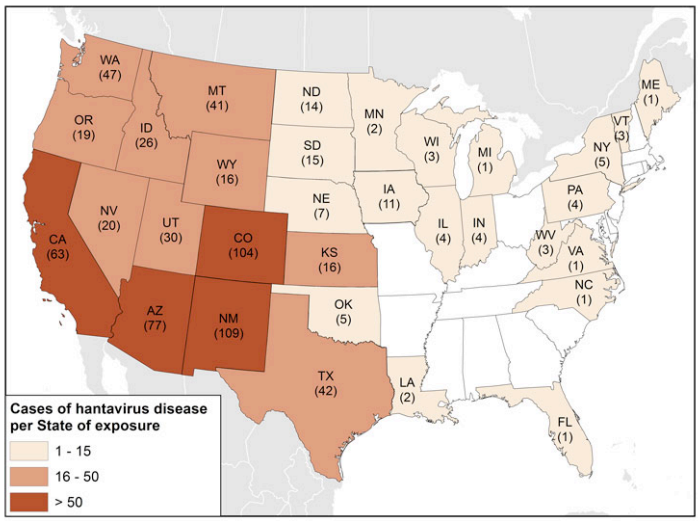

Figure 3. Number of hantavirus cases as of January 2017. Image excerpted from Center for Disease Control and Prevention (https://www.cdc.gov/hantavirus/surveillance/state-of-exposure.html).

Clean Up

Sanitation is a key element in mitigating rodent problems. By keeping your home clean, you alter habitat quality by limiting the amount of food available to rodents. Clean spills immediately after they are made. Clean up food preparation and cooking surfaces after use, including outside cooking areas and grills. Wash and dry dishes after use. Sweep around food preparation surfaces and the stove after preparing meals. Clean food storage areas regularly after inspecting for signs of rodents. Store flour, sugar, grains, breakfast cereals and other dry staples found in your pantry in metal or heavy plastic air-tight containers capable of resisting gnawing. Store pet food and bird seed in similar containers. Keep kitchen garbage in trash cans with tight-fitting lids. Fix leaky pipes and insulate pipes prone to condensation to limit access to water. Take the garbage out regularly so it does not build up in the home or garage. Do not leave pet food and water bowls outside overnight and keep bird feeders away from the home. If storing larger quantities of animal feeds, stack feed sacks on racks that are at least 12-inches off the ground and preferably away from walls.

If rodent signs have been observed in your home heating and cooling ventilation system, turn it off. Consider employing a rodent extermination professional to remove rodents from the ventilation system. After rodents are removed, it is necessary to hire a professional duct cleaning service that is capable of addressing the particular risks associated with rodents.

Outside, fix leaky faucets and irrigation systems. Keep compost bins and debris piles at least 100-feet from the house. Keep fresh compost turned into the pile to limit easy access. If you have stacks of pallets, tires, rocks or other materials that you have no definite plans for – take them to a recycling center or landfill. Stack fence posts on a rack that is at least 12-inches off the ground; however, stacking pallets 12-inches off the ground only increases rodent harborage. Remove old vehicles and appliances from the property. By reducing the clutter and elevating remaining materials you remove potential rodent nest sites from your property.

Keep vegetation short around piled and stacked materials. Remove tree branches that hang over the edge of the roof. Do not allow dense vegetation to grow next to the house. Dense vegetation is very attractive to rodents. Deep mulch beds also create harborage for rodents. Keep vegetation around the house mowed and pruned. If it looks like it might harbor a rodent, it probably does or will in the near future, so clean it up.

Special Considerations

Wet cleaning areas that have rodent signs is recommended and may be accomplished by saturating the area to be cleaned with disinfectant and waiting the prescribed time stated on the disinfectant label. This prevents stirring up dust and fecal particles that may be contaminated with hantavirus and which you may inhale. Wipe up the area with paper towels and place soiled materials in a plastic bag for disposal. Double bagging helps prevent exposure in case of a tear. Avoid using brooms, vacuum cleaners and leaf blowers.

Summary

By looking for signs commonly left by rats and mice you can determine if and to what extent rodents live in your home. By altering the 3 components of habitat to prevent or limit shelter, water and food availability you encourage rodents to move on to other locations. Through trapping you reduce and may

eventually eliminate the rodents in your home. Repeating the practices discussed you can mitigate your rodent infestation. Remember to *seal up, trap up and clean up*.

References and Useful Materials

Center for Disease Control, rodent webpages. https://www.cdc.gov/rodents/

Prevention and Control of Wildlife Damage. Editors, Scott E. Hygnstrom, Robert M. Timm, Gary E. Larson. 1994. University of Nebraska-Lincoln. 2 vols. http://icwdm.org/handbook/index.asp

California Department of Public Health video on disposing of a trapped mouse. https://www.youtube.com/watch?v=kD_5CxdD2G0

Internet Center for Wildlife Damage Management information on excluding rodents from home and commercial structures. http://icwdm.org/handbook/rodents/RodentExclusion.asp

https://nmbeef.nmsu.edu/

Registration:
Online registration available thru **5 pm, January 14.**
You may register online to pay with credit card, check, or at-the-door. PCards allowed!

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Now - January 2

Late Registration | $95
January 3 - January 14

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Wednesday, January 16

1:00 pm:	**The Benefits of Technology in the Beef Industry** Dr. Gary Sides, Zoetis Animal Health
2:00 pm:	**Consumer Driven BQA in the Beef Industry** Ben Weinheimer, Texas Cattle Feeders Association
2:45 – 3:15 pm:	**Break**
3:15 pm:	**Emerging Health Concerns in Feeder Cattle** Dr. Greta Krasfur, Colorado State University, College of Veterinary Medicine and Biomedical Science
4:00 pm:	**MLV Vaccine Update. Point and counter-point** **MLV vs. Killed Vaccine**
5:00 pm:	**Social Hour**
6:00 pm:	**Dinner**

Thursday, January 17 - New Technologies in the Beef Industry

8:00 am:	**Water Management at the Ranch** Dr. Marcy Ward, New Mexico State University Mitzi Miller – Miller Angus, Floyd, NM Kenneth McKinzie - McKinzie Land and Cattle, Santa Rosa, NM Kendal Wilson – Carrizozo, NM
8:45 am:	**Antimicrobial Use in the Industry** Dr. Elaine Blythe West Texas A&M University
10:00 – 10:30 am:	**Break**
10:30 am:	**Animal Health Company Panel on Vaccine Technology**
11:15 pm:	**Craig Gifford Wrap up talk**
11:45 pm:	**Lunch**
12:45 – 3:00pm:	**Break Out Sessions** **- BQA Training and Certification for New Mexico or Texas** **- Cow Model Demonstrations** **- Come and Go Tour of Tucumcari Bull Test Station**

If you are an individual with a disability who is in need of an auxiliary aid or service to participate in this event, please contact Bruce Carpenter at 432-336-8585 by January 4, 2019.