

# Migrating Mice

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Cool autumn nights are much welcomed after the long drought of summer. Autumn is a time when people put away their vehicles of summer (boats, personal watercraft, campers, garden tractors, etc). Stored, too, is seasonal farm machinery and garden and lawn equipment. Often the storage areas are barns, garages, outdoor equipment sheds and other buildings that are uninhabited and seldom entered for weeks or months.

Cooler temperatures also bring rodents into buildings. Everything from mice to squirrels are drawn inside to warmer climates. Rodents get under hoods or in working compartments of stored equipment.

Small rodents in confined spaces of plastic-coated electrical wiring, rubberized belts and moving mechanical parts are a recipe for disaster. Potential problems may be combustion and fires caused by nest materials or chewed wiring. Odors and stains from urine and disease potential from urine or droppings are other issues.

## What do Rodents Want Inside my Building?

How do you stop such a combustible mix of ingredients from forming? First, you have to ask why these animals seek these spots in the first place. For rodents, even a few degrees warmer temperature inside an unheated storage area can be attractive. Because of a concrete or brick building's natural insulation, these offer more temperate daily change than do the dramatic temperature changes outside.

Animals also seek protection in confined space as well as warmth. Such areas are also conducive to nest building. Mice use nests for protection in midwinter. Use gloved hands to remove any nests or nesting material (chewed paper, cloth, cardboard, grasses, etc.). Expect nests in early spring. Remember that birthing and rearing of young mice, often begins before these storage areas are re-opened for summer use.

Rodents also seek food and water. Grains, seeds, meals and pet foods can form much of their diets. Norway rats use free water readily, but most mice rely only upon food as a water source. Salt is another attractant. Don't leave a sweaty welcome mat for rodents. Remember those salt-laden human fingers that once upon a hot summer's day had handled rubber or plastic-coated parts?

## A Good Defense and Offense

Both a good defense and

offense is required in rodent control. A three-fold line of defense against rodents is warranted. Your first action should be to rodent-proof all or part of the storage area and to protect susceptible belts and hoses. If possible, close openings into buildings smaller than 1/4 inch for mice and 1/2 inch for rats. Occasionally, structural changes need to be made. (See the NebGuide on Rodent-Proof Construction at [www.ianr.unl.edu/pubs/wildlife/g1217.htm](http://www.ianr.unl.edu/pubs/wildlife/g1217.htm) for building curtain walls and



PHOTO/Centers for Disease Control/James Gathany

protecting drains). Use a lubricant or preservative to wipe off salt from hoses, belts and wiring.

Your second defensive action should be to reduce or eliminate harborage (places where rodents find protection) both inside and outside the building. Tall, unmown seed-bearing weeds and grasses are a favorite spot for mice to find food and protection. Equipment and supplies, particularly those surplus items that are seldom used, should be stored on pallets. Outside, these pallets should be in areas cleared of grass or weeds; inside, these pallets should be at least 12 inches away from walls of the storage building.

Your third defense should be to remove potential rodent foods. Clean up spilled grains, seeds and pet foods and place stored foods in rodent-proof containers. If pets are in the same area as the stored equipment, pets should be fed so that their food is completely cleaned up before each nightfall.

Now it's time for the offense to do its job. These efforts should be made only after a building is rodent-proofed, and rodent food, salt, water and protected spaces are eliminated inside and outside the building. If the defense has done its job, the offense will have better success at much lower costs to you.

Your first task is to detect and assess existing mouse populations. Populations of mice in confined space leave a distinctive musky odor. Mice are better seen at night, viewed with a red cellophane over the lens of a strong flashlight. Several mice seen may indicate moderate to high mouse populations.

You can indirectly assess mouse populations by viewing their tracks and tail drag marks. Place a light dusting of unscented talcum or chalk on a piece of floor tile or other slick surface. Tiles can be moved to along walls where mouse traffic occurs. Hold a flashlight at a low angle to illuminate and inspect for mouse tracks.

## Repellents, Traps and Toxic Baits

The effectiveness of repellents in storage areas depends upon how much potential food, shelter or warmth is still left to attract rodents. Repellents are always most effective just prior to rodent entry than after rodents have entered a building and have developed habits difficult to break. Repellents are often short-lived in their effect and must be re-applied. Caution should be used in believing claims of repellents, such as Rat-A-Way<sup>®</sup>, that are promoted as lasting two to three months. Use caution, too, as some repelling odors may not only be obnoxious but harmful.

Repellents that protect areas or confined spaces operate through aversive sounds or odors. These may be effective in small spaces, such as under vehicle hoods, engine compartments, unused passenger compartments, trunks, etc. Just be sure to remove them before using the equipment the following season! Area-wide repellents include ingredients with essential oil of spearmint, naphthalene (an ingredient in some moth balls) or certain aromatic herbs such as the Artemisias (wormwood and sagebrush). Fresh Cab<sup>®</sup> is a sachet of essential oils and spices on corn cob chips.

Shake-Away<sup>®</sup> is a powder formulation of fox urine used as an area-wide repellent. In general, urine of meat-fed predators has had some repellent effects when placed upon planted seeds. The active ingredient seems to be sulfur compounds. These are also emitted by thiram (tetramethylthiuram), a fungicidal seed-treatment that is also a rodent repellent (Gustafson). Home remedies used as area-wide repellents also include coffee grounds and castor oil.

Mice can detect and communicate in sounds up to 60 KHz while humans normally hear only frequencies as high as 20 KHz. Devices that emit ultrasonic or subsonic sounds have been marketed as rodent repellents. The effectiveness of these devices is, as yet, unproven.

Repellents applied directly to plants or objects to be protected, operate by aversive tastes or smells affecting the trigeminal sense of mammals. At least one lubricant of mechanical parts (Mouse-Out<sup>®</sup>) offers not only to get the squeak out of moving parts, but also get the "squeak out" by repelling mice. Hot pepper extract (capsicum or capsaicin) is detectable to mice at very low concentrations. Several products containing capsaicin are marketed as tree squirrel repellents. Hot peppers, liquified in blenders, strained and

see MICE on page 11

## Environmental Focus



# Wolf Spiders: Big, Hairy and Real Fast

The last few weeks, many concerned citizens have brought very large wolf spiders to the extension office. These large spiders are not related to tarantulas — even though they look similar. Their presence inside the house causes anxiety for many people. Wolf spiders are outdoor species



Wolf spiders have a distinctive eye pattern, with one large pair of eyes facing forward and 6 other eyes below and to the side.

that do not survive well indoors, but in the late summer they wander into houses by mistake.

Wolf spiders are common in almost all terrestrial habitats, but are often found in areas of tall grass or shrubs where a plentiful insect supply is available. Wolf spiders have excellent vision and actively hunt and pursue prey during the day. They do not spin a web to capture their food as some other spiders do. They run on the ground in search of prey

and pounce upon the victims with vigor and power.

Wolf spider mothers carry their large egg sacs around with them. When the young spiderlings hatch, they climb onto their mother's back and ride around until partially grown.

Wolf spiders are not poisonous, though as with all

spiders, bites may cause reactions in certain individuals. Spiders that can be successfully trapped in a large jar can be taken back outside and released. Sticky traps can also be useful in catching fall invading spiders as well as crickets and other insects.

If you have children who are interested in a different kind of pet, try a wolf spider. Feed them crickets and provide water. (BPO)

## Using Rodenticides in Outbuildings, Garages and Barns

Sometimes mice take up residence in garages, outbuildings or barns. There could be so many mice that it is impossible to make headway with baited snap traps and repellents don't make sense. It might make sense to use several multiple catch traps in these locations because they can catch a dozen mice or more before needing attention. Sometimes, it also might make sense to use rodenticides.

The earliest anticoagulant rodenticide was warfarin, developed in 1947. The word *warfarin* is an acronym, meaning Wisconsin Alumni Research Foundation, which funded the research project and patented this anticoagulant. Single large doses of warfarin are not effective, but small daily doses will kill mice and rats. This slow activity was an important breakthrough in rodent baits, because rodents had developed "bait shyness" to earlier baits that made them sick right away, but did not kill them. But, they were susceptible to the slower acting anticoagulant bait. Warfarin is still available, but not used as much as in the past, as there are more effective second generation anticoagulants available.

If you look at the products on the shelf at your local hardware or farm supply store, you will notice that the active ingredient of many of the rodenticides is brodifacoum. It is one of the most potent of the second-generation antico-

agulants and can kill mice with a single feeding. It is available in blocks or pellets and is so effective that only a couple bait pellets will kill a mouse. Other single dose anticoagulants are bromadiolone or difethialone. Different rodents have different susceptibilities to these rodenticides. According to Bobby Corrigan, a nationally known rodent control consultant, brodifacoum is more effective on the house mouse; bromadiolone or difethialone may be more effective on rats.

If you have a cat or dog, what's the likelihood that the pet will die of secondary poisoning after eating several poisoned mice? According to Corrigan, this scenario is very unlikely. But, it would be a good idea to clean up dead carcasses when you see them.

Because of the toxicity of these baits, we do not recommend their use inside homes, schools, sensitive environments unless a trained professional is doing the rodent control. Mice sometimes hoard food and move it from where it is placed making it accessible to pets and children. Poisoned rodents may also die inside walls — the idea that they leave dwellings in search of water — is simply not true. For more information about rodent control, pick up NebGuide: Controlling House Mice (G92-1105-A) available at the extension office or online at: [www.ianr.unl.edu/pubs/wildlife/g1105.htm](http://www.ianr.unl.edu/pubs/wildlife/g1105.htm). (BPO)