



## CASE STUDY

### SILENT INVADERS: BATTLING DEER MICE IN COMMERCIAL SPACES

The deer mouse (Genus *Peromyscus*), often referred to as the white-footed mouse, is the most abundant and widely distributed mammal in North America. While their preferred habitats are rural areas—forests, grasslands, and agricultural fields—these small rodents are surprisingly common pests in commercial properties located in such regions.

Deer mice are nocturnal and spend their days in nesting locations. Outdoor nesting sites include tree hollows, stumps, roots, and the undersides of rocks and logs. Deer mice also nest above ground and have been known to use abandoned squirrel or bird nests.

Inside commercial buildings, deer mice prefer areas with infrequent use or low foot traffic. Storage rooms, warehouses, drop ceilings, wall voids, commercial kitchens, food processing areas, mechanical rooms, and utility spaces are common nesting locations.

A deer mouse's adaptability allows it to thrive in various commercial properties, often creating challenges for property owners and managers. Understanding how deer mice access structures, what attracts them, and where they are most likely to hide is key to establishing an effective control program.

In addition to traditional rodent threats—spoilage of food and ingredients, contamination of food preparation and processing surfaces, and the transfer of pathogens leading to foodborne illnesses such as *E. coli* and salmonella—deer mice present a serious health risk in the form of hantavirus.

#### CHALLENGES

Deer mice pose a triple threat to commercial properties: they thrive in low-activity areas, have a larger foraging range than house mice, and are highly destructive.

Sprague Pest Solutions route manager Zachary Wearstler notes that deer mice dominate his rural route, which includes agricultural and food processing facilities with numerous outbuildings and structures that see limited activity for long periods.

For example, Wearstler services a growing facility where the owner stored a luxury motorhome in a shop building over the winter. Upon returning in the spring, the owner discovered chewed upholstery, damaged wiring, and droppings throughout the vehicle. Similar risks exist for wiring and interior of expensive farm machinery stored indoors, with infestations potentially causing thousands of dollars in damages.

Deer mice are also adept climbers and swimmers—behaviors often associated with rats rather than mice. Combined with their preference for low-activity areas, this allows them to move easily within structures, complicating control efforts.

Wearstler recalls finding a severe infestation at the bottom of a grain elevator with smooth cement walls that posed little resistance to the deer mice.

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“The grain elevator was in a very remote area,” said Wearstler. “Except during harvest season or when trucks were unloading and loading, no one was there 95% of the time. The deer mice loved it.”

Peak deer mouse season (in the interior of structures) typically occurs after the first freeze as they seek shelter for the winter.

Sprague route manager Casey Carpenter notes that deer mice, like other pests, are opportunists. They often enter structures through shipments of unprocessed food materials, shipping pallets, containers, rail cars, or trucks, as well as through open loading docks and exterior doors.

“Once inside, they’ll use tunnel systems and conveyors in processing facilities to move around in search of food,” said Carpenter.

In one case, Carpenter found deer mice infesting the insulation between the first floor and basement of a barley processing facility, using electrical wiring to move between their food source and nesting location. The mice gained entry through an unsealed opening around an exterior water faucet.

“Part of the flooring was clear, so you could see directly into the area where the mice were,” said Carpenter.

## SOLUTIONS

Designing an effective rodent control program requires leveraging all available tools, including sanitation, exclusion, baiting (where permitted), trapping, and employee education.

Carpenter and Wearstler emphasize that exclusion is critical in controlling deer mice in commercial properties, especially those in remote areas or with intermittent use. Structural issues are often overlooked, providing easy access for deer mice.

Key exclusion steps include:

- Installing door sweeps and ensuring doors and windows close properly.
- Sealing entry points such as cracks in foundations, gaps in walls (especially corrugated metal), and utility openings.
- Installing screens on vents around utility openings.

Older structures often present more challenges due to missing mortar, hidden crawlspaces and wall voids, and sub-basements that offer ideal nesting sites.

Carpenter encountered a situation when serving a commercial kitchen at a resort that was dealing with deer mice. It was an older structure with a basement crawlspace under the kitchen. There were numerous cracks and openings in the foundation area, and a false wall between the original wall and new wall that led directly into the crawlspace.

The mice were gaining access through the openings in the crawlspace and proceeding into the wall void and gaining access to the kitchen. Using heavy duty steel wool and expanding foam, Carpenter was able to seal the openings and use multi-catch snap traps to knockdown the population.

Since deer mice are naturally outdoor dwellers, targeting their exterior habitats is also crucial. Maintaining landscaping, such as trimming trees and bushes and removing brush piles near structures, helps eliminate nesting locations. Exterior baiting and trapping are effective, particu-

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larly in food processing facilities where interior baiting is prohibited. Sanitation, inspecting incoming shipments, proper ingredient storage, and trapping are essential for success.

### RESULTS

The goal of a successful deer mouse control program in commercial properties is to eliminate active infestations and proactively prevent future ones.

This requires collaboration between pest control professionals and facility management. Key practices include inspections and monitoring, maintaining sanitation and storage practices, addressing structural maintenance, and actively engaging employees to report rodent sightings and address conducive conditions.

### FACTS ABOUT HANTAVIRUS

Rodents pose significant health and food safety risks, with hantavirus being a serious, albeit rare, threat. This group of viruses can cause severe respiratory, kidney, or blood-related illnesses, sometimes fatal, and is both unpredictable and serious.

Hantavirus is primarily carried by deer mice and spread through their urine, feces, or saliva. The virus typically becomes airborne when contaminated droppings or dust are disturbed, though direct transmission through bites is also possible.

Infections often occur when cleaning infrequently used spaces like storage buildings, crawlspaces, attics, pump houses, or warehouses. Precautions should be taken when entering potentially rodent-infested areas.

Hantavirus infection is characteristically an influenza-like illness. Symptoms include fever, headache, muscle aches, nausea, vomiting, and lower back pain. More seriously, it can lead to respiratory distress and death in humans. There is no specific treatment for hantavirus. Patients should receive supportive care, including rest, hydration, and treatment of symptoms.

Sprague's Carpenter and Wearstler said clients often underestimate the threat hantavirus poses because of its rarity, but that doesn't mean they should not take steps to reduce the threat and protect workers and customers.

Employees need to use the proper personal protective equipment (PPE) when working in areas where deer mice might have established nesting sites, especially when cleaning or reopening these areas in the spring or after harvest when the likelihood that deer mice may have been introduced.

Wearstler said it is important that crews sterilize, not just clean, surfaces in these areas. Learn more about the importance of sterilization for pest management here.

"An over the counter cleaner will not reduce the threat," said Wearstler. "Cleaning crews need to read the label completely and make sure they use the correct products for the situation."

And it's not just storage rooms or outbuildings that need cleaning. Wearstler said he has encountered deer mice infestations in the filtration systems of tractors that have been stored over the winter. These filters need to be replaced before usage.



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