

# Steps for Complete Rodent Control

- 1. Inspect** – With the help from a rodent/pest management professional licensed to work in restaurants, conduct a thorough inspection of the site. Find out which rodent species are present, where they are located and how they enter all structures. Identify areas where rodent-proofing may be required. Teach your staff the signs of rodent activity and possible infestation.
- 2. Clean and Maintain** – Ensure that the site is as clean as possible at all times. In particular, sweep and mop food and liquid spills immediately. Inspect all inventory daily prior to using and storing it. Seal any exterior cracks and window/door gaps. Keep waste containers tightly closed. Access to alternative food and water should be prevented.
- 3. Select** – Your pest management professional will recommend one or more treatment options based on the information gathered during the inspection. Selecting the treatment that removes the pest from your restaurant or commercial kitchen as quick as possible is likely more important than any other criteria.
- 4. Treat** – Rodenticides must be handled responsibly and in compliance with label instructions while taking humans, non-target animals, and the environment into consideration. Please refer to the approved product label for specific use information.
- 5. Follow-up** – Schedule regular pest control appointments until the infestation is controlled. For large infestations, inspect all bait points 1-2 days after the first bait placement. If bait is completely consumed at a bait point, re-apply bait. In such situations, using the highest label rate per bait location is recommended to ensure bait is maintained at that location.



**above:**

Look for rodent droppings, gnawing or damage, stains, tracks, or nests; food debris, or other rodent evidence.

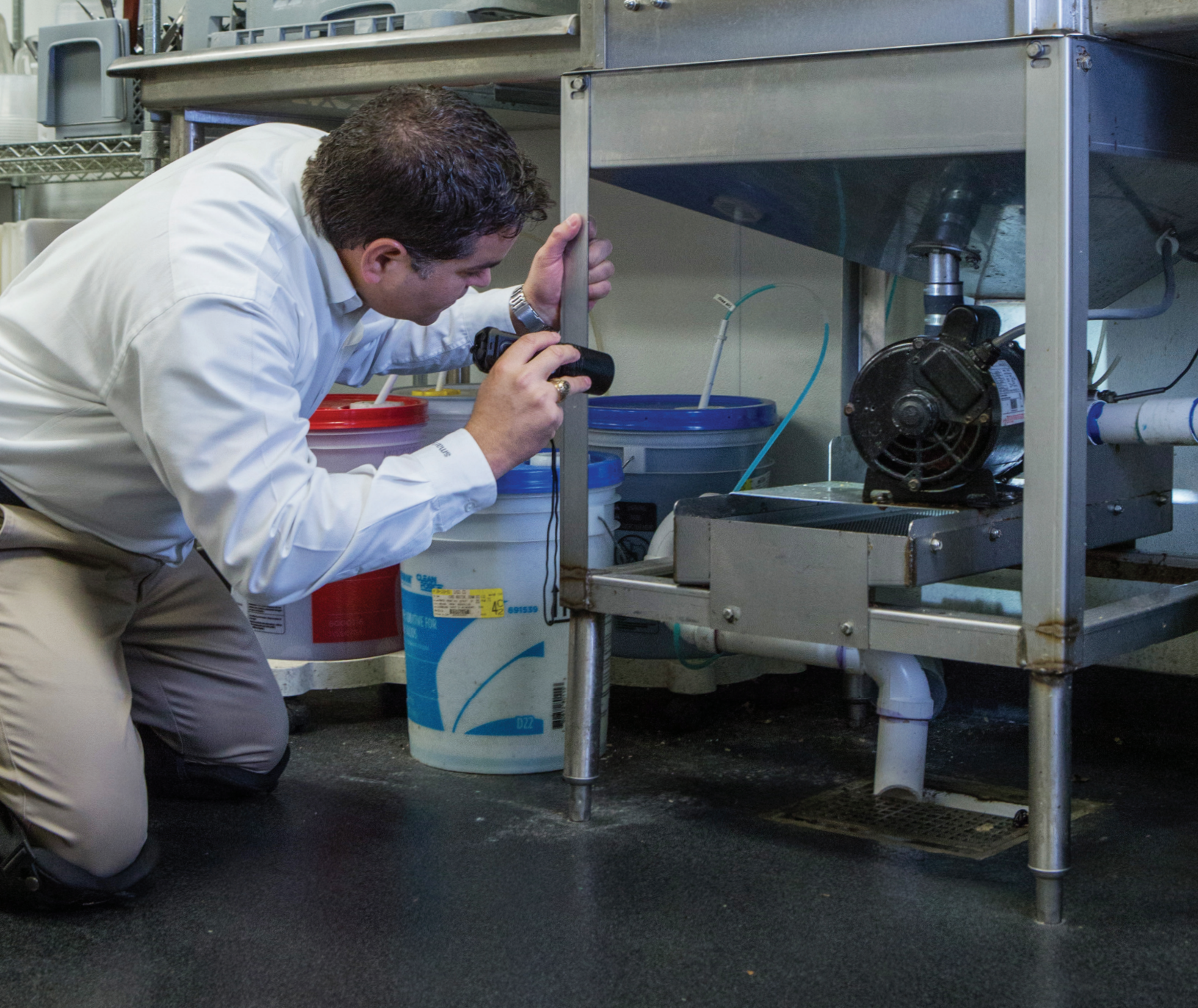


**above:**

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## Sources

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- <sup>6</sup> Rodents 101, National Pest Management Association. (2017). Retrieved from <http://www.pestworld.org/news-hub/pest-articles/rodents-101/>
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**Rodents and Restaurants  
Taking Proactive Measures  
to Avoid a Shutdown**

## SOCIAL MEDIA RAT VIDEO LEADS TO RESTAURANT CLOSING



“Rats are coming from the ceiling and crawling down the walls. I told my fiancé. ‘let’s get out of here.’”

above:

*July, 2015 -- Customer Ernesto Guerra and his fiancé saw rodents scurrying along the restaurant’s ceiling and walls. He quickly pulled out his camera phone, video recorded the incident and posted it on Facebook. The restaurant was closed the next day. <sup>1</sup>*

## Rodents and Restaurants

### Taking Proactive Measures to Avoid a Shutdown

Nothing can destroy the reputation of a restaurant or commercial food service faster than customers seeing rodents. In today’s social media world, the loss of business is almost instantaneous. An apology, a complementary meal, or a gift certificate for a future visit will be too late to prevent the damage to the business.

In addition, as more and more people become aware of the sighting, the losses begin to multiply to the point of being an irreparable disaster. Customers (and employees) tell friends and thousands of others about their experience(s). News media grabs the story. Health departments screen social media for complaints and send inspectors to make unannounced food safety inspections. Next, the inspection report soon shows up on television news. Then people pop up, even employees, claiming that the facility had been dirty, infested, and unsafe for years. If a pest control company is brought in at that point to fix the problem, it’s too late. The business should have taken proactive measures to avoid a shutdown. It is not true (paraphrasing Benjamin Franklin) that, “A penny saved on pest prevention is a penny earned.” Instead, a penny saved on rodent prevention can lead to a rodent infestation and potentially a business failure.

### Rodents Are Attracted to Restaurants

It’s a challenge keeping rodents out of restaurants. Every day, food service personnel take or drag bags of food waste to a waste bin near the back door of the restaurant, sometimes leaving a trail of food residue along the way. Keeping the area outside free of rubbish and rodent attractive materials is a daily chore. If this unpleasant chore isn’t done well and often, then rodents are not far behind. It’s just a matter of time until rodents are inside the building and causing major problems.

Reviewing health department restaurant inspection reports, especially in large cities, rodents are present inside a majority of restaurants. Occasionally, someone will say that every restaurant has problems with rodents but the rodents are not being detected during restaurant operation. Rodents are active after dark when they can forage without being seen. Not seeing a rodent during the day in a restaurant, let’s say by a health department inspector, is like someone saying that they didn’t see any owls during an afternoon walk, yet owls are everywhere outdoors.

### Rodents are a Critical Problem

Negative social media can cause serious financial damage to a business, but the real concerns about rodents inside a restaurant are (1) the health consequences to the customers, employees and their families and (2) the physical damage to materials and the facility.

#### Physical Damage

- (1) Rodents will utilize any openings to enter a food facility but they will also gnaw holes in the walls, doors, roof, ceiling, and any other obstacle

to their entry into the facility. Rodents will damage products and contaminate ingredients in the storeroom. Mice often will nibble on so many packages that it seems like they damaged everything. Once rodents have gnawed their way into large packages or storage bins, they may then just move in, make a nest, and start multiplying inside the restaurant. Rodents will damage electrical wiring and electronic equipment that is important to the routine operation of the facility. Besides malfunctioning equipment, rodents occasionally cause a fire by gnawing on wires or making their nests near wiring. Damage caused by allowing rodents to infest a food service facility can be expensive to repair.

### Health Consequences

(2) It's well known that rodents are loaded with bacteria, inside and out, and, if rodents are present inside a food facility, then food contamination is occurring which threatens public health.<sup>2</sup> Rodents will contaminate tables, equipment, prep tables, dishes, and everything that they touch during their nightly explorations and food forays. A rodent in a restaurant is like a living inoculating needle in a microbiology lab – it spreads microorganisms everywhere. If we could closely watch a rodent all night inside a building, we would be surprised at the extent of its activity and the contamination.

Damage to wiring, food containers, structural elements, and other materials is visible if it can be found. Contamination is not visible. A person who eats in a rodent infested facility can be painfully sick and not know the source of the bacteria (e.g., which meal, which food item, which piece of food service or surface,) that made them so sick.

Rodent fecal droppings are visible, however, airborne dust from dried rodent droppings and residue from rodent droppings left on the broom, vacuum, or other facility “cleaning” equipment cannot be seen but can result in contamination. Rodent urine cannot easily be detected either, even with an inspection blacklight. Mice leave several thousand micro-droplets of urine per day wherever they wander inside a food service facility.<sup>3</sup> The extent of food contamination by one mouse is difficult for most people to imagine and it's even more incredible if there are several rodents present.

Rodents are covered in hairs and continuously shed them during their activities. The hairs, whether attached to the animal or not, are loaded with bacteria. There are regulations on food workers wearing hairnets/head covers to prevent human hair from accidentally contaminating foods prepared in a food service facility. There are no rules for rodents to wear hairnets to prevent contamination of food inside a food service facility.

*Continued on next page*

## PROTECT YOUR RESTAURANT WITH A PEST CONTROL STRATEGY



### EDUCATE YOUR STAFF

*Teach them the signs of an infestation  
Emphasize cleanliness  
Remove garbage/trash frequently*



### MANAGE YOUR INVENTORY

*Inspect all items before storing  
Don't store old or unneeded materials  
Clean food storage areas regularly*



### KEEP AN EYE OUTSIDE

*Look for signs of rodents around waste containers  
Keep waste containers and surrounding area clean  
Seal any exterior cracks and window/door gaps*



### GET REGULAR PEST CONTROL

*Schedule regular professional pest control service  
Call your pest control company if you notice signs of an infestation*



**above:**

The green rods are *Salmonella* bacteria under high magnification.

“It’s estimated that rat-borne diseases have killed more humans in the last 10 centuries than the casualties of all wars and revolutions combined.”

(source: [www.fws.gov/pacificislands/publications/Ratsfactsheet.pdf](http://www.fws.gov/pacificislands/publications/Ratsfactsheet.pdf))

**below:**

*To maintain a rodent free facility, routine inspections are a key component of a proactive integrated pest management program.*



There are also no rules that rodents must wash before entering a restaurant or wash their feet before running across a food contact surface. Depending on where a rodent has been recently, it may transfer significant amounts of pathogenic bacteria. For example, a rodent from a filthy location (e.g., sewer, waste containers, outdoors, floor, a difficult to clean location.) that comes into contact with food, food utensils, food contact surfaces, or anywhere that has been “cleaned” or was assumed to be “cleaned” could cause customers to be sick or worse.

Conservatively, the Centers for Disease Control and Prevention (CDC) estimate that 48 million individuals suffer from “food poisoning” and over 128,000 people are hospitalized annually as a result of eating contaminated food<sup>4</sup>. Even worse is that over 3,000 people die from food contamination each year in the United States, which has very strict food safety rules.

### **Rodent Regulatory Requirements**

For example, in the United States, the Food and Drug Administration (FDA) through its Food Code, sets standards for food safety. The laws, rules, regulations, ordinances, etc. of states, counties, and even cities must be consistent with the FDA Food Code. Basically, FDA does not allow a rodent infestation in food service facilities, but the wording of each state’s regulations varies considerably, (e.g., premises must be pest-free to pests should be controlled to minimize their presence on the premises).<sup>5</sup>

Enforcement of these regulations is usually an annual inspection by the local health department. These inspections are done by inspectors who are often not well trained in food safety and certainly not trained or equipped to find rodent evidence. They simply go through their checklist and indicate whether they saw a rodent or evidence of rodents. The final inspection score can be affected by the interpretation of an individual inspector. The inspector may consider a dead mouse or a few rat droppings as one non-critical violation and take off fewer points. Or, an inspector might count evidence of rodents in different areas (e.g., dumpster, kitchen, storeroom.) as several critical violations. Scoring systems vary but two or three critical violations usually results in the restaurant being closed until the problem is corrected or at least not seen again in a follow-up inspection in a few days or weeks. Even an excellent rating posted in the window by the health department is no assurance that rodents are not present. The important point is that an inspection once a year is not as effective in detecting a rodent problem as customers every day of the year using social media to describe their rodent sightings.

## The Future of Food Safety

Rodents are an ongoing problem for restaurants and food service facilities. Health departments are encouraging restaurant customers to report rodent sightings. Health department inspectors and food service employees need basic training on the role of rodents in food safety. The success or survival of a restaurant today requires a much greater emphasis on rodent prevention rather than on rodent control after an infestation is detected.

## Proactive Pest Prevention

Keeping rodents out of a restaurant or food service facility will require professional pest prevention services as well as commitment and effort by restaurant management.<sup>6</sup> The pest management professional is trained and equipped to thoroughly inspect for signs of rodents indoors and outdoors. Based on the findings of the pest inspection, recommendations will be made for improvements and repairs (e.g., sealing rodent openings in walls to exclude rodents in the future) and treating or controlling an existing problem appropriately (e.g., traps indoors, rodent stations outdoors, barriers, etc.). Recommendations may be made on a rodent detection and monitoring program and training of restaurant employees, including management. Training topics should include:

- Food safety and the importance of rodents to food safety.
- Public health and the success of the restaurant and their continued employment.
- Rodent identification and biology (e.g., the difference between rats and mice, rate of reproduction, survival needs and conducive conditions, etc.).
- Employee responsibilities (e.g., inspection of incoming goods, reporting evidence of rodents (damaged product, rodent fecal droppings, holes in the ceiling and building, etc.), and most importantly, immediately reporting the details of a rodent sighting to management).

## Summary

Despite many food safety regulations and inspections, rodent problems and infestations are increasing in restaurants and food service facilities. The presence of rodents inside a restaurant is a critical food safety concern due to unseen food contamination that occurs. Sightings of rodents by customers in restaurants are posted on social media instantly for millions of people to know. The damage to the restaurant's name and business can be huge and permanent, even if people did not report becoming ill from eating there. A proactive rodent prevention program to keep rats and mice out of restaurants and food service facilities is the only good solution to prevent rodents from shutting down a food service business.



### above:

*Rodents contaminate and destroy enough food worldwide each year to feed 200 million people.<sup>7</sup>*

### below:

*Rodent prevention and control is challenging in restaurants that are only part of a larger building.*



## Signs of Rodents

Rodents are nocturnal and feed mainly at night so they are rarely seen. The following are signs that rodents are present.



### Sightings

Rats are generally more nocturnal than mice and are not usually seen during daylight hours. Older, less dominant rats in large populations may look for food during the day as they cannot compete for the food at night. An observation of foraging rats during the day can be an indication that a large infestation may be present.



### Gnawing damage

The double gouge marks of rodent twin incisors are easily identified. The relative size of the teeth gouges can give a clue to the species.



### Tracks

Noticeable paths along exterior walls, in vegetation, or rodent footprints and tail marks in sand or dust indicate a problem. Rodent movement patterns can be detected by using tracking dust or light sand.



### Burrows

Burrows are holes in the ground that lead to a rodent's nest. The burrow entrance is typically up to 10 cm wide and is commonly found under buildings, patios, compost mounds, bolt holes, wood piles, low vegetation and accumulated heaps of rubbish. More often than not the burrow will be near a water source.



### Nests

Mouse nests are usually discovered accidentally when opening or removing some item from the storeroom. They are often found inside boxes (empty or not) or under materials and equipment that are rarely disturbed. They are also fond of nesting in warm places such as in the motor compartment of some equipment. The nest will comprise of shredded materials found in and around the building.



Mouse droppings

### Droppings

Rodent droppings are often the first evidence found of a rodent infestation. Older droppings are usually duller and easily broken. The best way of determining the existence of a current rodent problem is to remove any droppings and then check the same spot again a few days later for new droppings.



### Food Debris

Food debris, such as partially chewed food or empty nut shell cases, can be indicators of rodent activity. Rats tend to eat all the food they find, but will still leave inedible food stuffs such as nut shells. Mice often leave partially eaten food behind.



### Rodent Stains

Rats that have become established in a facility often leave faint dark greasy stains where they commonly travel (e.g., hole into a wall). A little training and some experience will help a person to recognize rodent stains in a restaurant.



### Sounds

Rodents may be heard, but not usually. Occasionally, if it's very, very quiet, gnawing, scratching, squeaking, fighting, or other faint sounds may sometimes be heard.

# Rodent Behaviours and Physical Characteristics



	<i>Rattus rattus</i>	<i>Rattus norvegicus</i>	<i>Mus musculus</i>
<b>Common names</b>	Ship rat, black rat, roof rat, fruit rat	Norway rat, brown rat, wharf rat, sewer rat	House mouse
<b>Adult weight</b>	100 – 350 g	150 – 450 g	15 – 30 g
<b>Length (head + body)</b>	150 – 220 mm	200 – 250 mm	60 – 90 mm
<b>Length (tail)</b>	180 – 250 mm, longer than head and body	150 – 200 mm, shorter than head and body	80 – 100 mm, usually longer than head and body
<b>Fur &amp; colour</b>	Smoother and softer than <i>Rattus norvegicus</i> ; variable in colour ranging from a rare black colour to grey/grey brown above with a white or pale grey underneath	Rough and shaggy; grey to brown with grey or off white underneath	Variable in colour ranging from yellowish brown to grey above, with a white, grey or pale yellow underneath
<b>Ears &amp; hearing</b>	Thin, translucent, large and hairless; excellent sense of hearing	Thick, opaque, short with fine hairs; excellent sense of hearing	Large with some hairs; excellent sense of hearing
<b>Eyes &amp; sight</b>	Large and prominent; poor sight, colour blind	Small; poor sight, colour blind	Small; poor sight, colour blind
<b>Snout, smell and taste</b>	Pointed; excellent sense of smell and taste	Blunt; excellent sense of smell and taste	Pointed; excellent sense of smell and taste
<b>Droppings</b>	Scattered; spindle or banana-shaped, about 12 mm long	In groups, but sometimes scattered; ellipsoidal capsule shaped, about 20 mm long	Scattered; rod shaped, 3-6 mm long
<b>Habits &amp; habitat</b>	Nests mainly in walls, roof voids, vines and trees; however, can develop extensive burrows; active, agile climber; rarely found in sewers; rather more erratic and unpredictable in habit than <i>Rattus norvegicus</i>	Does burrow; lives outdoors, indoors and in sewers; nests in burrows; can climb, though not agile; very good swimmer; conservative, somewhat predictable in habit; will avoid unfamiliar objects, e.g. bait trays, placed on runs, for some days; creatures of habit; will leave regular runs to and from feeding areas	Sometimes burrows; lives indoors and outdoors but is almost unknown in sewers; nest generally within stored materials but may burrow; climbs; erratic in habit; inquisitive toward new objects
<b>Feeding habits</b>	Omnivorous, mainly fruits, nuts, grains and vegetables; consumes 25 – 30 grams per day, drinks water or eats food with high water content; range 30 metres when looking for food	Omnivorous, more likely to eat meat than <i>Rattus rattus</i> ; consumes up to 30 grams per day, drinks water or eats food with high water content; will hoard food for future consumption; most likely to eat at night; range 50 metres when looking for food	Nibbles; prefers cereals; consumes 3 grams per day; unlike rats, can survive with very little water and often obtains sufficient water in food without the need to drink; range 1.5 – 5 metres when looking for food
<b>Lifespan</b>	6 – 12 months	6 – 12 months	6 – 12 months
<b>Sexual maturity</b>	2 – 3 months	2 – 3 months	1 month
<b>Litter size</b>	5 – 10	7 – 12 (up to 18)	4 – 6 (up to 12)
<b>Reproduction rate</b>	5 – 6 litters per year	About 6 litters per year	About 11 litters per year