



Pest Control



Rodents, bats, birds, insects, spiders and other pests can damage water system equipment and contaminate the water supply. The best way to control pests is to keep them away, and prevent them from entering water system facilities. If that fails, it is important to know the signs of infestation and ways to get rid of pests.

State drinking water rules prohibit any activity that could contaminate the drinking water source. They require the person who owns or operates a public water system to provide a sanitary control area around wells (100-foot radius) and springs (200-foot radius). The rules also require the design of distribution reservoirs to keep birds, insects, excessive dust and other potential contaminant sources out.



Eliminate all entry points into buildings and other enclosures

Well enclosures, pump houses, valve boxes, storage facilities, treatment buildings and storerooms are attractive habitats for many pests. Once established, these pests damage buildings by gnawing and building nests; create fire hazards by chewing wiring and insulation; endanger the water supply by chewing pipes, hoses or control system components; and contaminate everything with their waste. If water sample results indicate fecal contamination, you or the state Department of Health Office of Drinking Water (ODW) may have to issue a health advisory.

Rodents

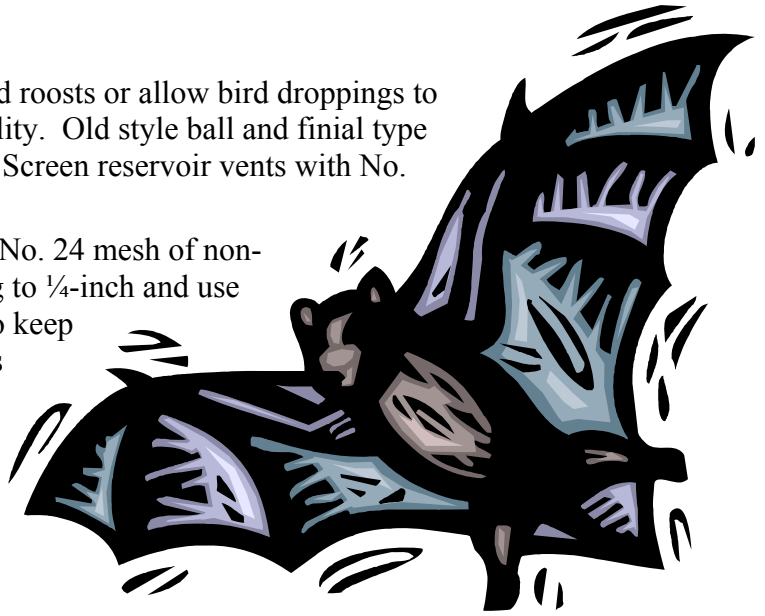
Rodents can create unsanitary conditions, contaminate your water source or storage facility, and create a health hazard for anyone entering the structure. Mice, rats and other small animals can burrow near well enclosures and concrete pads surrounding well casings. Deep burrows near the well casing could create a direct conduit to the source water.

To keep rodents out of buildings:

- Eliminate or plug all openings larger than ¼-inch. Be sure to use rodent-resistant materials, such as ¼-inch hardware cloth, concrete, sheet metal, heavy wire mesh, brick or mortar. Don't use latex, plastic, rubber or wood materials because rodents can gnaw through them.
- Seal cracks in the building foundation, walls or floors, and openings around pipes, vents, cables or wires with metal or concrete.



- Design vents so they don't become bird roosts or allow bird droppings to wash, blow or fall into the storage facility. Old style ball and finial type vents do not meet these requirements. Screen reservoir vents with No. 24 mesh of non-corroding material.
- Screen storage facility overflows with No. 24 mesh of non-corroding material; restrict the opening to ¼-inch and use duckbill check valves or a flap valve to keep birds, bats and insects out. Flap valves must close completely. Be sure to check them regularly.
- Use a layer of gravel at least 6-inches deep and 1-inch wide to protect pipe openings that penetrate the floor.
- Cover or remove exposed fiberglass insulation in your pump house or enclosure. Insulation provides nesting materials and absorbs urine. Be sure to cover all insulation with a durable covering such as exterior plywood or OSB. Do not use sheetrock because it disintegrates in a damp environment. You may want to replace the insulation with insulated foam board.
- Make sure doors, windows and screens shut securely and fit tightly. Cover the edges of doors and windows with metal to prevent gnawing.
- Keep the space under doors or between the walls and the floor less than ¼ inch.
- Inspect air-vent screens regularly, and repair as needed.
- Use appropriate metal guards. For example, use a 12-inch-wide flat funnel for a single vertical line next to the building and an 18-inch-wide disk for horizontal lines.



Bats and birds

Bats and birds can enter a building through attic vents, cracks and holes under a rotted eave, openings for pipes and wiring, rotten windowsills, loose screens and storage tank openings, such as vents, overflow lines and access hatches. The only way to keep them out is to seal or screen all openings they might use to enter a building.

State and federal laws protect many bats and some birds. Therefore, do not take the following exclusion steps during warm months – May through August – while bats are raising their young. In addition, when you do take exclusion steps, make sure all bats are absent. For example, act at night after all bats depart for their nightly feeding.

- For a permanent fix, use ¼-inch hardware cloth, screening, sheet metal, caulking, quick-setting hard putty, expanding polyurethane foam or steel wool. This can be a difficult job because, in many cases, you must seal all upper openings ⅜-inch or larger.
- For a temporary fix, plug the openings with copper or large stainless steel scouring pads. You can seal them later with cement or mortar.
- For older more deteriorated buildings with many openings, drape large sections of plastic bird netting over the roof area. This is a temporary low-cost way to keep bats and birds out until you can make permanent repairs.

Inspect all facilities for signs of infestation

Routinely inspect the interior and exterior of reservoirs and other facilities for signs of infestation or other sanitary problems before contamination occurs.

- Check landscaping for rodent droppings and burrows. To find out if a burrow is active, put soil in the opening and check the next day to see if it is open again.
- Check for unprotected openings between the walls and roof.
- Ensure the sidewalls of all structures are watertight with no openings except properly constructed doors, windows, vents, access hatches, overflows, cathodic protection equipment, risers, drains, pump mountings, control ports or piping for inflow and outflow.
- Look at the water storage-facility roof. Is it watertight and effectively drained? If not, drain the low areas, seal cracks and regularly remove moss, leaves and other debris. Are roof openings curbed (4 to 6 inches) or sleeved with proper additional shielding to keep precipitation and surface-water runoff out of the stored water?
- Make sure vents keep surface water, excessive dust, roof splatter, rainwater, birds, animals and insects out.
- Are the wellheads clean and dry? Well vents can draw in dust containing particles of dried feces and urine. They should have gooseneck vents screened with No. 24 mesh of non-corroding material.

Rodents

Begin by inspecting each building weekly. Look for gnaw marks, burrows, runways, droppings, urine, dead rodents, footprints or tail marks. Be careful not to stir up dust. Rodent waste may contain virus particles. Inhaling contaminated dust particles could cause respiratory disease.

- **Droppings** – Rodents leave droppings along frequently traveled paths, near nesting sites and among food caches. Rodent feces are firm and do not readily disintegrate. Be sure to use health precautions when inspecting droppings.
- **Smudge marks** – Rodents leave marks as they travel over beams, rafters, pipes, walls, and other frequently used paths. Mice leave lighter marks than rats
- **Gnawing** – You may see gnaw marks on doors, ledges, corners, walls, stored materials or other surfaces wherever mice or rats are present.
- **Urine** – You may smell urine or see stains. Ultraviolet light makes wet or dry urine glow.
- **Nests** – If you have exposed fiberglass insulation, rodents may pull the insulation away from the outer covering to create nesting areas.

Bats and Birds

Inspect pump houses, well houses and storage tank roofs and appurtenances regularly for cleanliness and condition.

- **To detect bats:**

Look for droppings. Musty-smelling bat feces look similar to rodent and bird feces, but often adhere to a vertical surface. Bat feces easily crush into fine, shiny, undigested insect parts. Often, you can see bats hanging from the ceiling areas.



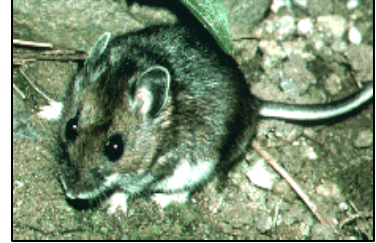
Bat feces often sticks to walls.

- **To detect birds:**

A damaged storage-tank overflow screen and poorly designed or damaged vents and access hatches could allow birds to gain entry. Some birds, such as woodpeckers, are especially aggressive in finding the perfect nesting spot. Bird feces usually have white coloring.

Remove Favorable Habitat

Do not use poisons in or near the pump house, storage facility, valve box or other facilities housing water system components. State drinking water rules prohibit using pesticides or other poisonous substances within the sanitary control area.



Rodents

To flourish, rodents must have food, water and access to nesting sites. If you remove or reduce the food and water supply, you will remove and reduce the number and types of rodents and other pests. Traps are useful, but insufficient without effective measures to exclude rodents from buildings.

Landscaping

1. Reduce rodent burrowing by placing a strip of heavy rough gravel about 2 feet wide and 6 inches deep adjacent to building foundations, walls and other structures.
2. Keep all vegetation 2 to 3 feet away from walls.
3. Mow the lawn frequently. Keep landscaping free of tall grass, heavy brush, weeds, ivy and other vegetation. They hide burrows and provide seeds for food.
4. Don't plant dense vegetation. Select plants with open or airy shapes. Space them apart, allowing light to penetrate and creating openness between and underneath.
5. Thin ground plants and trim trees and shrubs to allow at least 12 inches of open area beneath plants. You can also spread pea gravel in shrub areas to control weeds and prevent burrowing.
6. Trim tree limbs to a minimum of 6 feet from contact with roofs, attic vents, eaves and utility wires.

Facilities

1. Make sure rodents don't have access to well enclosures with sawdust or loose insulation. This is a great nesting place!
2. Store equipment, pipes or other supplies off the ground and away from any walls. Keep the area around the storage area clean and clear of vegetation.
3. Do not feed birds or other animals in the sanitary control area or near any other water system facilities.
4. Eliminate any source of moisture or leak inside the well house.
5. Keep the perimeter of buildings and other structures clean of debris, including stacked lumber or other stored materials, to discourage rodent activity and allow easier detection of rodent signs.
6. Do not store garbage, lumber, old equipment or other waste in the sanitary control area.

Bats

Bats roost in closed, dark spaces such as pump house rafters or ceiling areas. To keep bats out, make sure the walls and ceilings have no holes, the screens are adequate, and flapper valves or other devices operate correctly.

Birds

There are many ways to discourage or remove birds. What works depends on the species of bird.

- Place realistic scarecrows, such as owls or snakes. You must move them periodically to maintain effectiveness. Some bird-scare devices move with the wind.
- Install anti-roosting spike strips.

Clean Up Procedures

It is important to follow cleanup procedures carefully. Many diseases spread through droppings, urine or contaminated air particles.



Rodents

Clean up urine, droppings, dead rodents or nests

1. Open windows and doors and ventilate the area for at least 30 minutes prior to clean up. Do not stir up dust by sweeping or vacuuming.
2. Wear rubber, latex or vinyl gloves and a protective facemask.
3. Spray urine, droppings, dead rodents or nests with a disinfectant or a mixture of 1 part bleach to 10 parts water.
4. Let the area soak for 5 minutes. If you use a commercial disinfectant, follow the manufacturer's instructions on the label for dilution and disinfection time.
5. Use paper towels or rags to pick up the urine, droppings, dead rodents or nests.
6. Put the waste into a plastic bag and seal it tightly. Put that bag into a second plastic bag and seal it. Dispose of that plastic bag in a covered trashcan emptied regularly.
7. After you remove the rodent waste, disinfect contaminated items or surfaces.



Bats and Birds

Bats and birds are beneficial animals, but both can carry serious diseases. Never disturb bat or bird droppings without wearing proper clothing and protective devices. To prevent serious illness while cleaning up after bats and birds, follow the clean up procedures for rodents (above).

For more information:

Call your ODW regional office:

Northwest Region – Kent (253) 395-6750

Southwest Region – Tumwater (360) 236-3030

Eastern Region – Spokane (509) 456-3115

View these publications online at <http://www4.doh.wa.gov/dw/publications/publications.cfm>

Simple Fixes for Wellhead Openings (331-232)

Hantavirus Fact Sheet

Sanitary Protection of Reservoirs - Vents (331-250)

Bats and Rabies Prevention (333-022)

