

How to Control Bats in Your Home

Of the 24 species of bats identified in California, five form colonies or roosts in man-made structures, particularly in older structures with many openings and gaps through which they can enter. (See table.)

Bats may create disturbances by squeaking and scratching in attics, walls, and chimneys. Their fecal droppings and urine accumulate beneath roosts, creating odors, and, sometimes, these seep through cracks, causing stains on ceilings and walls. In addition, bat feces may attract insects.

More important: About one in every thousand bats is infected with the disease, rabies, creating a potential threat to humans. Fortunately, bats that live in buildings rarely become

aggressive, but instead develop a paralytic form of the disease. They will bite in self-defense and any bat bite must be treated as a possible rabies exposure. Because most human exposures occur from bites, never pick up or handle a sick or dying bat or do anything that will scatter sick, dead, or disabled bats where contact with people or pets may occur. If rabies is suspected, contact your local public health department for help.

Seasonal behavior patterns of bats

Most bats eat insects and roost in tree foliage and cavities, under loose bark, and in caves and crevices. Some bats roost in buildings during warm months and hibernate elsewhere during

Five species of bats that commonly form colonies or roosts in man-made structures in California

Common and scientific names	Wingspread	Description
Mexican free-tailed bat (<i>Tadarida brasiliensis</i>)	11.3 to 13 in	A rather small bat with long, narrow wings, best told by tail which extends well beyond tail membrane.
Big brown bat (<i>Eptesicus fuscus</i>)	13 to 14 in	One of largest bats in buildings. Most are copper colored. Each hair is bicolored—basal hair is blackish; outer half is brown.
Little brown myotis (<i>Myotis lucifugus</i>)	8.9 to 10.8 in	Fur-dense, fine, glossy, rich brown color. Ears and membranes glossy dark brown. Of a small brown species, this is the one most often found in buildings.
Yuma myotis (<i>Myotis yumanensis</i>)	8.7 in	Light tan to dark brown; underparts whitish to buff. Membranes darker than body.
Pallid bat (<i>Antrozous pallidus</i>)	13 to 14 in	A large bat with big eyes, ears, and broad wings. Piglike snout is distinctive. Hairs above are light yellow and tipped with brown or gray. Underparts are pale creamy color. Membranes tan

winter. In spring, females form maternity colonies to bear and rear young. Males tend to be more solitary at this time and roost away from the females. Young, flightless bats stay in the roost at night, while the females forage. By mid-August, the young bats are flying and males may also join the colony. As the weather cools and insect numbers decrease, bats usually migrate to preferred hibernation roosts for winter or to warmer areas, such as southern California or the San Francisco Bay Area, where insects are more active in winter. Occasionally, bats hibernate in buildings. In spring and fall, migrating bats may temporarily roost in buildings as they move through an area.

Inspection

The only permanent way of getting rid of bats in buildings is to physically prevent their entry.

Inspect the building for:

1. **Entry and exit points of bats.** A building in poor repair may have many entry points. Bats can squeeze through openings as small as 3/8 inch. Look for loose flashing, vents, shingles or siding; openings under eaves, cornices, louvers, and doors; around windows, chimneys, and outlet boxes, and where pipes or electrical wiring enter the structure. Droppings under openings, smudges around holes, and odors are helpful clues.

2. **Location of roosting site inside structure:** In the attic, within walls, inside the chimney, or behind a shutter.

Conduct two inspections of the building, one during the day and one at night. The day-

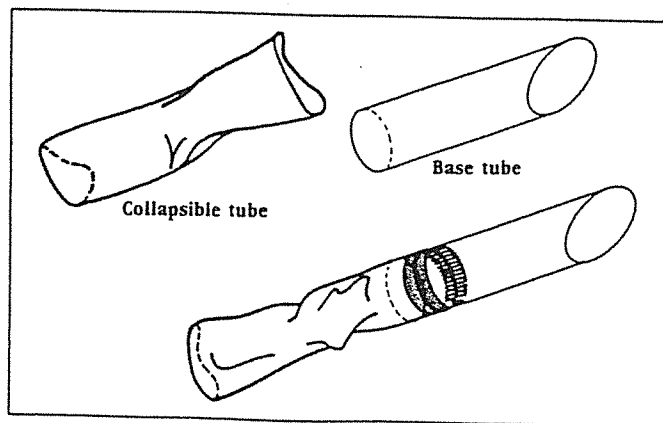


Fig. 1. One-way valve and components. The lightweight, pliable collapsible tube overlaps the heavier, relatively rigid base tube, to which it is attached with tape.

time inspection should cover possible entry and exit ways from the exterior and for roost locations in the building. If entry and exit points are not located during daytime, begin another inspection one-half hour before dusk and continue until about 1 hour after the first bat emerges.

Locate two observers at opposite corners of the structure so that each can view two roof lines at once. If the building has several wings, more assistants may be needed. Watch the emerging bats and note the openings they use. Those bats seen emerging at evening that were not located during the day could indicate the roost is in an inaccessible void. Counting the bats will help determine the size of the colony, but night-to-night occupancy can vary with migration and weather changes.

Control

No toxicants or chemical repellents are registered in California for control of bats. Batproofing should be undertaken as soon as bats take up residence in a building. The best times for batproofing a house are in spring before young are born or in fall after young bats are flying. Batproofing is not recommended from about mid-May to mid-August because newborn, flightless bats may be present in roosts, and they could be trapped inside or scattered outside the roost. Dying bats create an unpleasant odor inside a building, and if the flightless young crawl into a building or outside it, they may bite children or pets trying to pick them up. If young bats are present, wait until they are flying—then batproof the building so that they won't return the following year.

Batproofing often requires the use of ladders and other devices to get to the roost entry way. Be careful. Begin batproofing by blocking and sealing openings in the early evening after the bats have departed. (See box.) Seal all access points, including the one or two principal openings. Early the following evening, unplug the major openings to allow any remaining bats to escape. Reseal the opening(s) before any bats return for the evening. Repeat the routine if any bats are seen or heard within the structure. Watch the building for several evenings for any overlooked openings.

An alternative method that can be done entirely by day is to plug all but the principal opening(s) and install on the last exit hole(s) a device that acts as a one-way valve (fig. 1). The device

consists of a rigid, 2-inch diameter plastic pipe taped to a collapsible, pliable tube. Plastic tarp or a similar material is suitable for the collapsible section. The entire unit is attached to the structure, with the rigid pipe covering the last exit hole (fig. 2). Bats inside the roost can exit through the device, but are unable to reenter the deformed, collapsed end of the pliable tube. In time, after all bats have left, remove the device and seal the hole permanently.

Batproofing Materials

Unlike rats and mice, bats cannot gnaw through wood and other common building materials, so a number of materials can be used to seal access points. A partial list of materials and uses is given below:

Caulking	
Putty	cracks, holes,
Duct tape	crevices
Silicone and other cements	
Self-expanding polyurethane foam	cracks, crevices, corrugated and tile roofing
Weatherstripping	around doors and windows
Door sweeps	under doors
Flashing	wherever joints occur in a building
Hardware cloth, 1/4" mesh	
Window screening	ventilators, louvers,
Plastic bird netting, 1/4" mesh	large openings
Insulation	blown into wall and roof spaces
Rags, cotton, newspaper, tape	for temporary seals

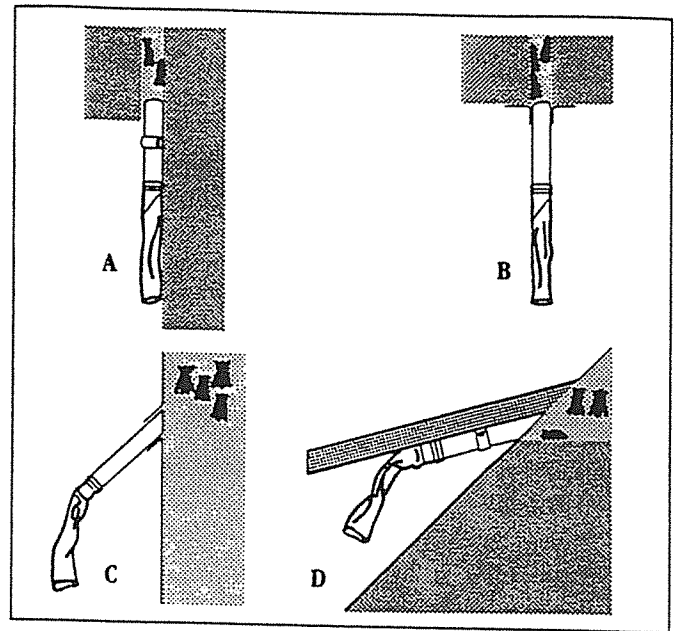


Fig. 2. One-way valve installations. (A) Attached in slot or hole with metal strap and screws. (B) Attached at slot or hole with duct tape. (C) Attached at vertical slot with duct tape, which is also used to block slot. (D) Attached at attic entry-exit with metal strap and screws.

Nonchemical repellents. Two methods applied singly or together may alter roost conditions sufficiently to cause bats to leave. Stringing electric lights for constant illumination of the roost has driven bats from some, but not all, roosts. Open doors and windows, if possible, to create drafts. Breezes from electric fans aimed at bats have also been reported effective. Effective in *some* situations, these methods can also fail because the bats may be able to move into cracks and crevices to escape light or breeze.

Temporary outside roosts. Bats in migration or male bats during the nursing season will temporarily roost in open areas under eaves, in porches, garages, patios, or behind shutters. Tacking coarse fiberglass batting to the surface of these areas may discourage them.

Bat inside a room. If a bat is discovered inside your home, encourage it to leave by opening all doors and windows. The bat will find its way out by detecting the fresh air movement. If it is dark outside, turn off all lights; otherwise, the bat may seek a dark refuge behind a curtain or wall hanging. As a last resort, catch the bat using a net or box. Avoid handling any bat, unless you are wearing leather gloves.

Additional sources of information

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