
School Pest Solutions



Bats

Bats are mammals and, like all other mammals, can be infected with the rabies virus. If you think that you or someone in your care has been bitten by a bat or been in contact with a bat, call the Maine Center for Disease Control (CDC) immediately at 800-821-5821. The professional staff at CDC can evaluate your situation and advise you on the proper medical treatment.

If possible, capture the bat, and put it in a container such as a coffee can. CDC can assist you in getting the bat to the Health and Environmental Testing Lab in Augusta where it can be tested for rabies. Never handle a bat with your bare hands. Wear leather gloves while capturing and containing the bat. For help with bat removal refer to the resources section below.

Direct contact with a bat may result in potential rabies exposure, so all bats that come in contact with students, faculty or staff must be tested for rabies.



Figure 1. Little Brown Bat (*Myotis lucifugus*)

DO NOT INSTALL BAT BOXES ON, OR IN CLOSE PROXIMITY, TO SCHOOL BUILDINGS

Resources for Help with Bat Removal

- USDA—Wildlife Services, 207-622-8263
- Maine Department of Inland Fisheries and Wildlife, 207-287-8000
- Or, check with your local game warden.
- Or, call a professional who does bat proofing and removal.

Bat species

- Big brown bat (*Eptesicus fucus*) (most commonly encountered)
- Little brown bat (*Myotis lucifugus*) (most commonly encountered)
- Northern long-eared bat (*Myotis septentrionalis*)
- Eastern small-footed bat (*Myotis leibii*)
- Tri-colored bat (*Pipistrellus subflavus*)
- Eastern red bat (*Lasiurus borealis*)
- Hoary bat (*Lasiurus cinereus*)
- Silver-haired bat (*Lasionycteris noctivagans*)

Bat Biology

Bats are highly beneficial wild mammals. Some bat species eat insects and consume up to their weight in food each night. Others are important pollinators. Bats are not flying rodents, nor are they insects, but belong to a unique order of mammals called Chiroptera (Latin for “hand wing”). Bats are also not blind; they have good eyesight. They can also 'see' in the dark by using echolocation. To do this, they emit a high frequency sound and listen to the echo to return. The length of time for the echo to return tells the bat how far away an object, like an insect, is.



Figure 2. Big Brown Bat (*Eptesicus fuscus*)

All mammals, including bats, give birth to live young. Most produce one pup a year, although a few species give birth to litters of 2 to 4 pups. Some bat species mate in the fall or winter, but they have the ability to delay fertilization and subsequent development of the fetus does not occur until spring. Other species, like the Mexican free-tailed bat, mate in the spring. Fertilization and fetal development follow, and pups are born in the spring or early summer (mid-April to September). By late summer, the pups are able to fly and feed on their own.

Bats live in a wide variety of places including caves, old buildings, hollow trees, under tree bark, and in the crevices under bridges. As natural habitat decreases, some species now commonly roost in buildings. Bats are creatures of habit and will return to the same roost year after year.

Name	Dimensions/Average Size	Description	Image
Big Brown Bat <i>Eptesicus fuscus</i>	Wingspan: 13 to 15 inches Total Length: 4 to 5 inches Weight: 13 to 25 grams	Color: Light rusty to dark chocolate brown; individual hairs darker at bases than at tips. Other: Tail completely enclosed in the tail membrane	Image is above table in Figure 2
Little Brown Bat <i>Myotis lucifugus</i>	Wingspan: 8 ¾ to 10¾ inches Total Length: 3 to 3 ¾ inches Weight: 4 to 5 grams (7 ½ to 8 ½ just prior to hibernation)	Color: Brown to bronze. Other: Tail completely closed in the tail membrane	Image is above table in Figure 1

Locations/Situations	Suggested Thresholds	Nonchemical Control Options
Classroom, gym, or interior of building	One bat found on ground	Ensure contact has not been made with anyone; Have the following items available before you approach the bat: a pair of thick work gloves, a plastic face shield, a small cardboard box and masking or duct tape; After putting on the gloves and face shield, carefully place a box or coffee can over the bat, place a sturdy piece of cardboard under the box or can, secure the box and tape it shut; take bat out side and place on a high surface or close to a tree so the bat can crawl up.

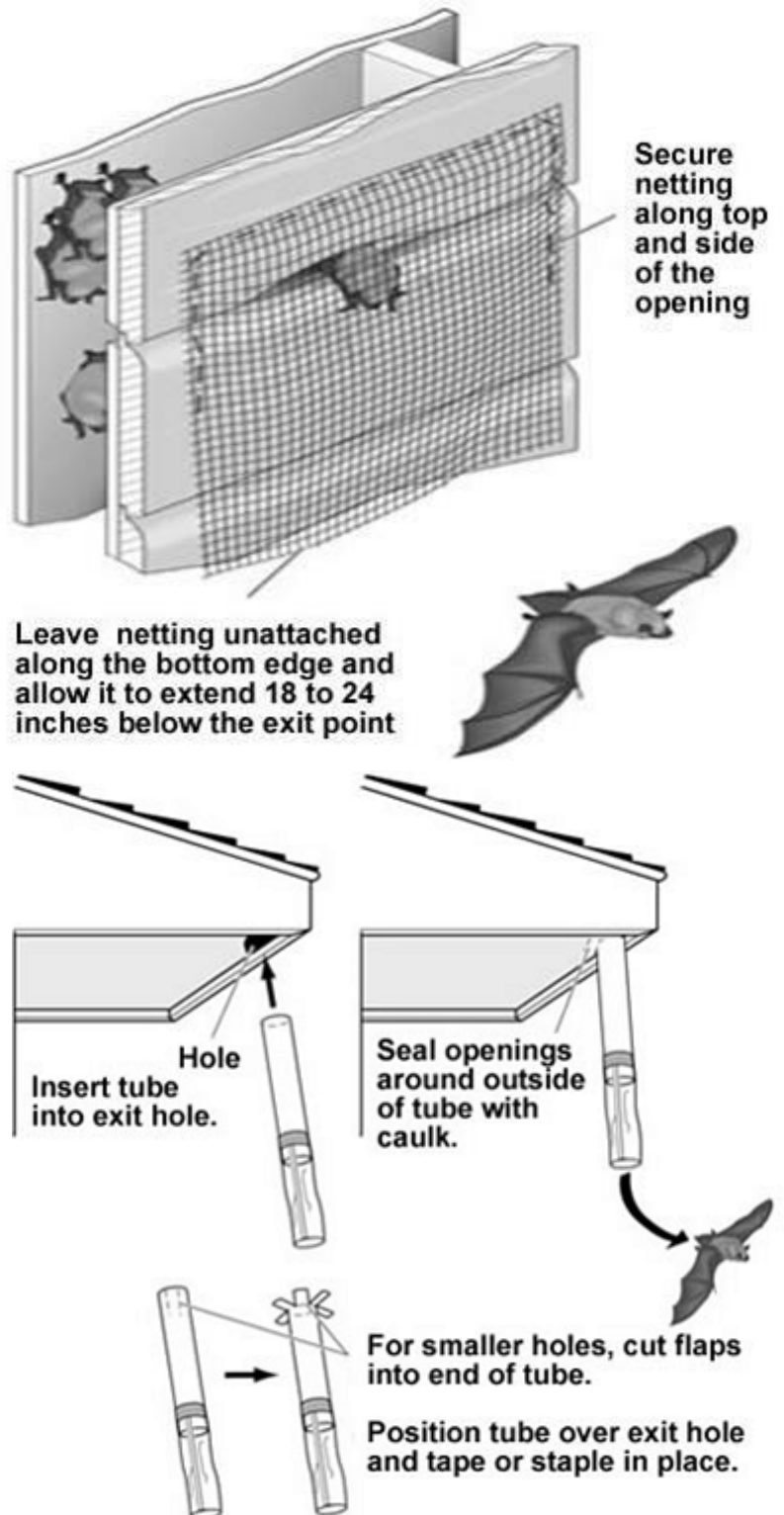
Building—artificial roosts	One known colony or evidence of bats inside building	After observing bat entry and exit points, seal up all other potential entry points using caulk, concrete cements for crack and crevice use, weather stripping, flashing, or hardware cloth (¼ mesh). See steps to evict bats below.
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Steps to Evict Bats

1. To effectively evict the bats you will need to use one-way shoots (see Image 1). You can make a shoot or one-way valve out of 2-inch (diameter) PVC pipe, an empty and cleaned caulking tube with both ends cut off, plastic netting (see figure 2), or even clear sheets of plastic. Place the tube or netting over the holes in the roof or soffit used by the bats to allow them to leave, but not re-enter the building. If bats are roosting in a long horizontal crevice, place a tube roughly every 6 feet along the entire distance to make sure all bats can get out. For some large areas, netting can be used to form a drape to allow bats to exit, but not return. If using netting, make sure it has a mesh of less than ¼ inch so bats won't get caught in it.
2. Leave these one-way devices in place for at least one week during warm weather to ensure all the bats have gotten out.
3. Once the bats are excluded from the building, begin remediation procedures. Bat guano should be removed from interior structures so as not to attract other pests like cockroaches or flies. The naturally occurring soil fungus, *Histoplasma capsulatum*, is sometimes found in bird and bat droppings.

Although it is generally associated with bat droppings in caves, where humid conditions are conducive to fungal growth, caution should be used when cleaning up guano in any confined area to prevent inhalation of fungal spores that can cause histoplasmosis.

- Employees should wear personal protective equipment. This should include leather gloves, long-sleeved



shirt, long pants and either a full-face shield or goggles and respirator capable of filtering particles smaller than 2 microns in diameter.

- Bat guano can accumulate quickly in large colonies. Prior to removing these deposits, your maintenance crew can lightly dampen the guano with water and a surfactant (soapy solution) to minimize dust and fungal spore dispersal into the air.
- Like other mammals, bats can have ectoparasites such as mites, ticks, fleas, and flies. Depending on the roosting location, a licensed pesticide applicator may need to make an application of desiccant or insecticide dust after eviction to kill parasites and keep them from entering areas occupied by students and staff.
- Ensure that the area has been permanently sealed off from the outside to prevent bats or other pests from entering the area.

Information on this page is from Texas A&M's IPM Plan for Bats.

For More Information

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