

Finding bats in your home is no cause for alarm. With a few home improvements, and some considerations for the bats, too, people and bats can coexist in perfect harmony.



Bats Around the Home

BATS FLY on their fingertips, performing aerial acrobatics few creatures can match. They maneuver with pinpoint precision through the nighttime sky and home-in on flying insects with deadly accuracy. At times, however, they invade our homes, normally causing nothing more than needless alarm. Bats and people can coexist. Here's how.

Bats are the only mammals capable of flight. Their wings consist of thin skin stretched between elongated fingers.

Contrary to popular belief, bats are not blind. But for flying and foraging at night, they use a form of echolocation. In this process, they emit high frequency sound waves. When these waves strike an object they bounce back as echoes. Bats use these echoes to identify not just an object's presence, but also its size, location, shape, texture and speed.

Flight and echolocation make bats the only major predator of night-flying insects. All of Pennsylvania's bats are insect eaters.

At dusk bats awaken and begin leaving their roosts. Singly and in small groups, usually following the same route, they head for water, and after securing a drink, fly on to feeding territories.

It's fascinating to watch bats emerge from a roost, unless the roost happens to be in your home; then they're a problem. The bat roosts people most often find in their homes are maternity colonies, places where females give birth and raise young. Generally, females return to the same roost year after year, in late

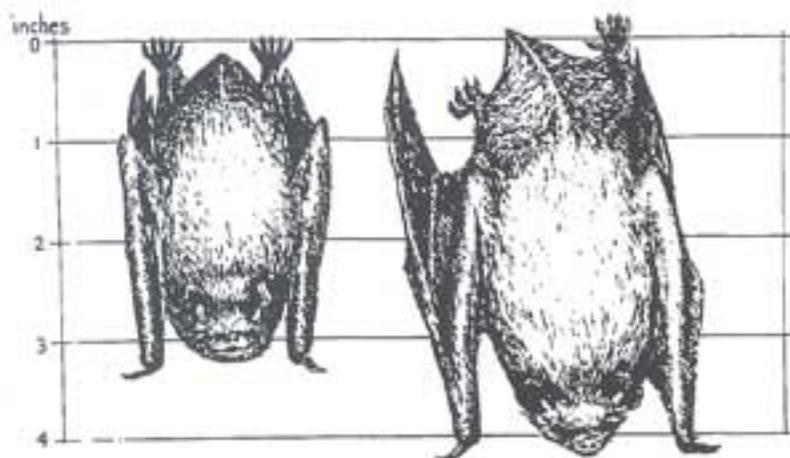
April to mid-May. Little brown bats are by far the most common species found, but big brown and northern long-eared bats have also been found in attics.

Because bats are quiet, timid tenants, homeowners are often unaware bats are in their attics. Problems start when the animals get into living spaces, or a colony gets so large that it creates a noticeable amount of fecal matter. In such situations, the bats should be evicted.

Pesticides are almost never advised or even legally permitted. They lead to dead bats, particularly if bats are trapped inside before chemicals are applied. In addition, poisoned bats may end up in living quarters or yards, jeopardizing children and pets.

The only effective, long-term way to expel bats is by sealing the openings they use to enter and leave the building. When evicting bats, timing is critical. If entryways are sealed at the wrong time, young bats may be trapped inside, creating an even bigger problem. Instead, bat behavior provides guidance in eviction timing and techniques.

In March and April, after hibernating, females return to their nursery sites and establish maternity roosts. Males go off on their own or in small groups. Nursery colonies reach full complement by mid-May. In early June, females begin having young; most have only one young per year. Young are flying by the end of July — at four to five weeks of



Little Brown Bat
Myotis lucifugus

Big Brown Bat
Eptesicus fuscus

age — and by late August they gradually begin leaving the roost. Most are settled in winter quarters by the end of October.

Most Pennsylvania bats hibernate in caves or abandoned mines. The big brown bat, bigger and hardier than our other bats, may spend the winter in a home, particularly in the basement of an abandoned dwelling.

The best time to bat-proof a home is from early November until mid-March, when bats are not occupying the house. Bats should not be evicted between mid-May and the end of July, when flightless young are likely to be trapped inside.

Before actually bat-proofing a home, locate all the openings bats are using. Do this at dusk in June or July by watching two sides of your house one evening, and the other two the next. Note every place bats are seen coming and going. Repeat the process until you're sure you've found all the openings. Look closely; bats can squeeze through very narrow cracks. Openings may be stained with droppings and urine. It's also a good idea to count the bats seen leaving the building, just so you have an idea how



many you're dealing with.

Because bats are not gnawing animals like squirrels, mice and raccoons, evicting them is normally just a matter of shoring up the roofing and filling gaps around eaves, windows and siding material. Fill narrow gaps with caulking; staple hardware cloth around larger openings. Depending on the size of the job, you may want to hire a building contractor to do the bat-proofing.

As mentioned earlier, big brown bats sometimes hibernate in homes. If you have this problem, or are forced to expel a colony before young are born or after they're flying, a one-way exit should be used. Polypropylene netting with a diagonal hole measurement of 5/8-inch, or 1/4-inch hardware cloth, can be used to construct this simple barrier.

Select one or two large openings the bats are using. Then with duct tape or staples, attach the netting or hardware cloth around the top of each selected opening. Next, extend the material one to three feet below the opening, and then bow or buckle the material and attach it so exiting bats have room to crawl down between the outside of the building and exclusion material. Finally, seal all other openings.

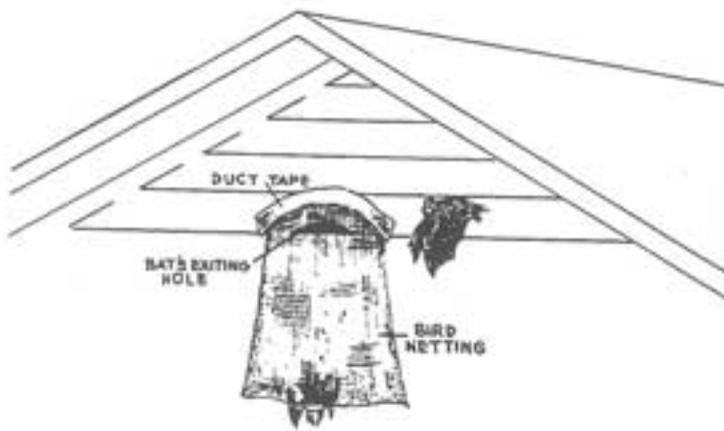
When returning, the bats will land on the mesh near the hole but will not go down far enough to find the opening at the bottom of the material. Because not all bats leave their roost every night, the material should be left hanging several days before the entrance is permanently sealed.

In the spring and fall, an alternative to the one-way door is simply sealing entrances, after dusk, while bats are out foraging. Open the exit before dusk the next evening and leave it open for several hours, to give any bats inside a chance to leave, then close it again. Do this for several evenings to ensure all bats have been expelled. It's likely to take several nights, so be patient.

Bats are fascinating and valuable animals, and eliminating a nursery colony can have long lasting, devastating effects on



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One-Way Exit

bat populations. Therefore, when evicting bats from a home, it's strongly recommended that bat boxes be erected to give the animals alternative nursery sites. Also, by providing alternative roosts, expelled bats are less likely to try to reenter your house — or your neighbor's — and the colony will still be around for insect control.

A bat box is like a large bird house but designed specifically for bats. It should be hung in the summer, so the bats can get accustomed to it before leaving for hibernation. They will then be more likely to accept it when they return in the spring, after the attic has been bat-proofed. Also, exposure to cold weather seasons the structure, making it more attractive to bats.

Bat houses should be hung on a pole or building, 10 or more feet above the ground, near an entrance to a roost the bats are already using. The location should get at least three to four hours of direct sun. Some people hang four boxes around a pole, allowing the bats to select the one most suitable. It may take a year or two before they take up residence, if they do at all.

For nursery colonies, bats seem to prefer sites that range between 90 and 110 degrees. Some people actually place small heaters in their bat boxes to maintain the proper temperature range. It's also a good idea to shelter the house from the wind. If bats are not using your structure, place a thermometer inside to see if its internal temperature falls into the preferred range.

If you get a nursery colony established, you may occasionally (usually in June) find a baby bat on the ground below the box. If it seems healthy and active, you may put it back in the

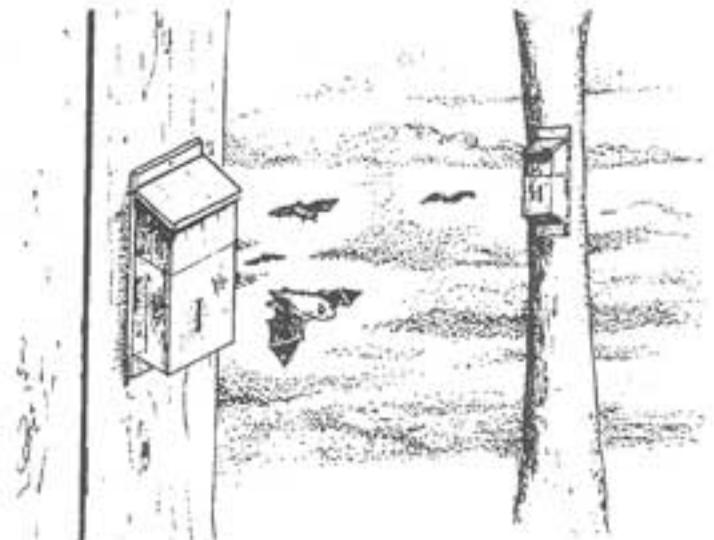
box. Put on a pair of gloves and get a pole long enough to reach the box. Tape a small, one-inch wide piece of cloth around the end of the pole. Hang the baby bat on the cloth by its rear feet and lift it up to one of the entrances. If the bat is healthy, it will crawl into the box on its own. Mortality among young bats is fairly high, though, and should be expected.

Another, more minor bat problem is when one shows up inside a home, flying around in a living room some evening or roosting during the day. This often happens in late summer and early fall, and typically involves a juvenile bat that's become disoriented and ends up where it shouldn't be. Trapped in a house, a bat's immediate reaction is to panic. Unfortunately, so is the homeowner's.

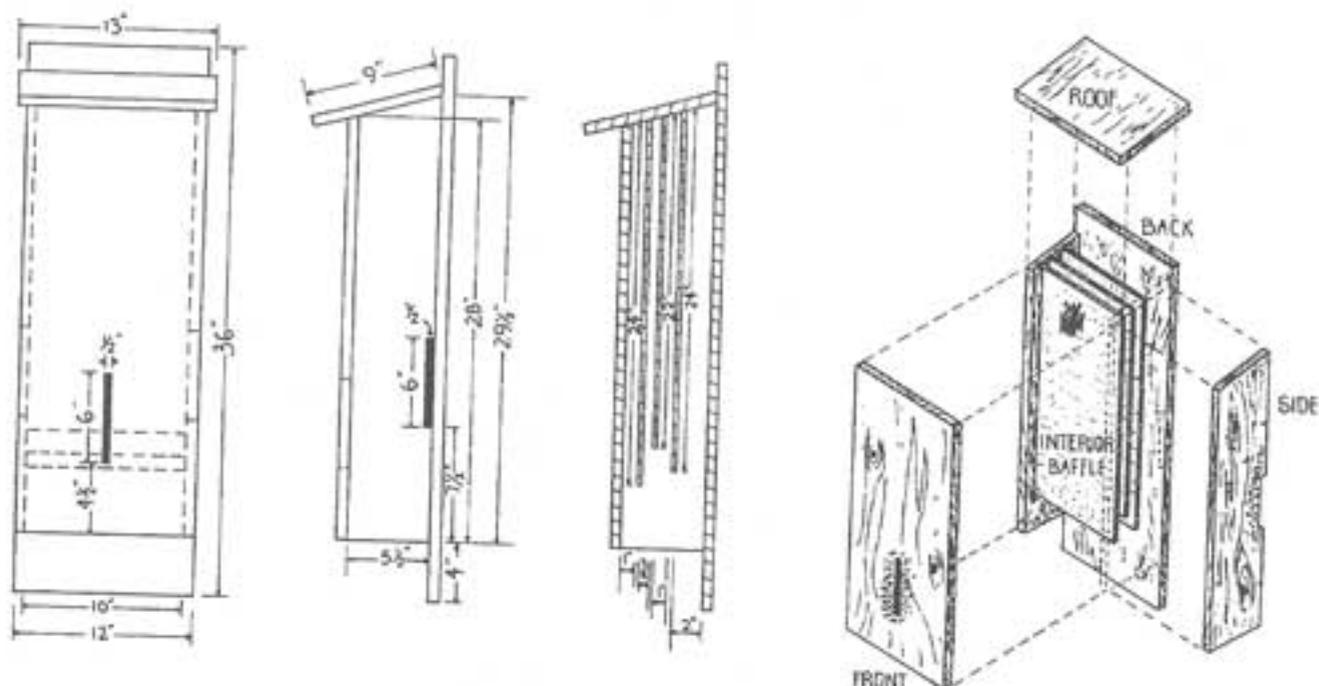
First, remain calm. Then open a window or door, remove any pets, and keep a light on so you can watch the bat. Most likely, within 10 or 15 minutes, the bat will calm down and fly out the open door or window. If the bat seems tired, and is resting on a wall, curtain or floor, put a deep bowl over it, then slip a piece of cardboard under it, trapping the bat in the bowl. Then, take it outside and release it. Handling bats this way, you never touch the bat, and it's not likely to get hurt.

Bats are valuable components of our natural world, yet they've been persecuted for years because of groundless fears and myths. Today we know that with just a few considerations, people and bats can and should coexist.

For more about bats, write the Pennsylvania Game Commission, Department MS, 2001 Elmerton Avenue, Harrisburg, PA 17110-9797.



Bat House Construction Plans



Directions

Sides should be cut from 3/4 x 5 1/2-inch board. The front, back and roof can be made of 1/2- or 3/4-inch exterior plywood. The three interior baffles should be constructed of 1/4-inch plywood. Using Luan plywood for interior baffles will cut down on weight.

Also needed: Latex caulk, dark colored rolled roofing, and wood spacer strips: (4) 1x1x24-inch and (2) 3/4 x 3/4 x 22-inch. Once wooden pieces are cut, use a screwdriver or knife to roughen all surfaces. Make horizontal scratches 1/4- to 1/2-inch apart for bats to cling to, especially around the main entrance at the bottom of the box and around the three vertical openings on the front and two sides.

Assembly (best to use wood or drywall screws)

1. Attach sides to front. (caulk seams)
2. Attach roof to sides and front. (caulk seams)
3. Install two 1 x 1 x 24-inch spacer strips to front interior corners.
4. Attach 1/4 x 10 1/2 x 24-inch plywood baffle to spacer.
5. Install two 3/4 x 3/4 x 22-inch spacers to sides and plywood baffle.
6. Attach 1/4 x 10 1/2 x 22-inch plywood to spacers.
7. Install two 1 x 1 x 24-inch spacers to second baffle and sides.
8. Attach remaining baffle to spacers.
9. Assemble back of box to roof and sides. (caulk seams)
10. Exterior can be painted or stained. (preferably latex based)
11. Attach rolled roofing to roof and caulk rear seam where roofing butts against back panel.
12. Tack rolled roofing onto front and sides, extending it approximately 12 inches down from the top. This will help insulate the upper section of box and enhance morning warming.

Attach box at least 10 feet high to a building or pole. Orient to south or southeast to catch the morning sun. If possible, provide some afternoon shade. When evicting bats from a building, place box near existing entrances, preferably a year prior to eviction. Capacity: 50 to 100 bats.

Wasp Control: If wasps become a problem, use a long thin stick to scrape old nests out in the winter. New nests can be knocked out in May or early June, during cool mornings or evenings, when wasps are less aggressive. If wasps are present, don't disturb. Bats and wasps can coexist in boxes. Bats provide travel lanes for wasps to reach their nests. Wasps, in turn, provide some protection against box disturbance.

If more capacity is needed, additional boxes can be placed side by side. For more information, contact the Pennsylvania Game Commission, Dept. MS, 2001 Elmerton Avenue, Harrisburg, PA 17110-9797, (717) 783-7507.