Bats: Information for the Florida Homeowner

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Background

Bats are an essential link in the balance of nature. In Florida, bats provide a valuable service by consuming mosquitoes and other night-flying insects—while posing little threat to human health. Curiously, bats have been feared and maligned by man since the Dark Ages. Some of this fear comes from the misconception that most bats carry rabies when, in fact, less than 1/2 of 1 percent carry the disease. There is no evidence that widespread destruction of bats or their roosts has reduced the already low health hazard. Bat control should be done by excluding entry into buildings, not by killing bats.

About Bats

Some people wrongly believe bats are flying mice. In fact, bats form a separate and distinguishable group of mammals more closely related to moles, shrews, and even monkeys than to rodents. Bats are the only flying mammals, and, except for certain unique features, their anatomy is similar to that of most other mammals.

Bat's wings are very different from those of birds, and built upon the same general pattern as the limbs of other mammals. The wing is composed of an upper arm, forearm, wrist, and hand with thumb and four fingers. The hand and fingers are greatly elongated in order to spread and control the wing. The hind limbs of the bat are attached at the hip in

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reverse, pointing the knees backward. This arrangement is thought to facilitate the bat's ability to alight upside down and hang by its toes.

Bats occur worldwide. Of the approximately 850 species of bats only 39 occur in the United States and of those, 17 occur in Florida. (For details on specific species see "A Checklist of Florida's Mammals", Florida Game and Fresh Water Fish Commission (GFC).)

Florida bats are highly beneficial because they consume tremendous numbers of night-flying insects, including mosquitoes. Bats locate insects at night using a very sophisticated sonar system (echolocation), emitting supersonic sounds and listening for echoes. Bats are most frequently seen on warm nights feeding over bodies of water, around buildings or forest edges, or around lights. During the day, bats find shelter in a variety of secluded places, preferring small, dark, poorly ventilated spaces that heat up during the day. Tree cavities, snags, and especially unpruned cabbage palms are important roost sites. Due to increasing urbanization, the number of these natural roosting sites has been reduced and window shutters, drain pipes, billboards, roof tiles, and attics have become popular roosting site substitutes.

Bats in the home

The presence of a bat in the home may be a sign that the house is not weather-tight. If so, take appropriate measures to locate openings and seal them. The best way to remove a single bat from the home is not to panic, but simply open a window in the room. The bat usually will circle the room, using its sonar, until it detects the open window and flies out on its own. If possible, stay in the room with the lights on and make sure the bat leaves. This should only take a few minutes. Another method is to use leather gloves and simply pick up the bat. Never handle a bat with bare hands because it may try to bite to protect itself.

If the bat "disappears" in the room, it probably has landed behind a curtain or in some hidden nook. In this case: open a window, turn off the lights, close the door behind you, and isolate the bat by blocking the space under the door with a towel. The bat should find its way out within an hour after dark as long as the weather is not too cold. One or two bats in the home may mean only that they came in through an open window. However, their presence could be a sign that a colony of bats has established a roost in a crawl space or attic. An obvious sign that a bat colony has taken up residence is when bats are observed flying in and out of a hole in the house. If they become a nuisance, the only long-term solution is to bat proof the building (Figure 1).

**Bat Control Methods**

In light of bats' beneficial feeding habits, give careful consideration before implementing any control measures. Pesticides, pollution, people, and habitat loss have reduced bat populations significantly. That is why non-lethal control measures are recommended.

**Exclusion Method**

The only permanent way to get rid of a bat colony is to exclude them from the building by plugging their entrance holes (bat proofing). Figure 1 shows a bat-proofed building. Locating the entrance way(s) to a bat colony is the most important step before implementing an eviction plan. Time of year is an important factor. Spring, fall and winter are the best times to exclude bats in Florida. Bats will hibernate during winter in cold weather climates. If you live in the northern one-third of the state, wait until after early January to exclude bats and seal openings. The worst time? From the first of April to approximately the third week in July, bats form nursing colonies. Exclusionary measures taken at this time would create major problems. There is a high probability that lactating mothers and their young are present. Young bats, not yet able to fly, remain in the roost. Sealing entrance ways would trap many of the bats, separating mothers from their young and leaving the young bats to die. The odor from dead bats is extremely offensive. It also may attract other bats in the area, increasing bat activity even more. Any adults trapped inside would try to locate other exits increasing the possibility of contact with humans.

To remove a bat colony, locate where the bats are entering or exiting. Since bats leave their roost shortly after sunset, watch the outside of the house...
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from 30 minutes before sunset until 30 minutes after. Bats may enter and exit through an unscreened attic vent, a chimney, and cracks or openings along eaves, window sills, and siding. Note: Bats do not need an opening they can fly through. A crack only 3/8" wide will admit bats.

Once all entrances have been located, seal all but the primary entrance. Next install a one-way door over the entrance as shown in Figure 1. Wait three or four nights, and if bats are no longer seen leaving the building, seal the remaining hole. If all the holes have been sealed, there will be no further problems.

Cracks, separations, or other openings should be repaired as soon as they are noticed. Keeping the house weather-tight and energy efficient is the best way to prevent bat problems from recurring.

Methods of habitat manipulation

Artificial Light

Since bats prefer dark spaces, artificial light can be used quite successfully, but only if the light is kept on continuously and moved regularly. Otherwise, the bats will soon find dark corners to avoid the light. This method also may cause bats to move deeper into the house as they avoid the light, making them more likely to enter living areas and come into contact with people.

Repellents

Although a number of methods have been devised to repel bats, this approach is only a temporary solution. Naphthalene (mothball) flakes can be applied to the area of infestation. As long as a strong odor remains, bats may not return. The effects will not last long and repeated applications are required to deter bat re-entry. Ammonia can be used to clean areas infested by bats. Pans of the solution then can be placed in a former roost to act as a repellent. Neither of these methods will be successful as long as bats can reenter the habitat once the odor has begun to fade. The strong odor is also offensive to humans and repeated applications may not be a tolerable long-term solution. Repellents are not as effective as simply waiting for the bat's normal departure at dusk and taking appropriate exclusionary measures.

Fumigants

There are serious disadvantages to the use of fumigants against bats. The results are not permanent, and the building may be recolonized at a later time. Also, poisons used in the extermination of bats may cause an increase in human or pet contact with bats as sickened bats fall to the ground and slowly die. Even if fumigation quickly killed all bats present, it would provide only a very temporary solution at best. Other bats could safely move in within just 2 days unless entry holes are plugged—a solution that would negate the need for fumigation. If fumigation killed a significant number of bats within the walls of a home, a serious odor problem would result. Simple exclusion after the bats' nightly departure is a far preferable solution.

A fumigant can be considered for bat control only in a real public health emergency under the authority of a special permit issued by the Florida Game and Fresh Water Fish Commission and only after all other feasible methods of exclusion and removal have failed.

Ultrasonics

Ultrasonic repellents are ineffective as a deterrent against an animal that uses ultrasound waves in many aspects of its life. They may actually attract bats.

Bat Conservation

Bat populations are on the decline throughout the United States. Loss of habitat due to the disturbance of natural and man-made roosting sites in buildings, old trees, and caves is a major factor in this decline. Another factor is active and persistent persecution by people not aware of the bat's gentle nature and beneficial activities.

Once bats have been excluded from one habitat it is often possible to provide alternative habitats. Uncut woodlots, snags, and viable wetlands with open water are important bat habitats. In particular, cabbage palm left unpruned is tremendously valuable as a home for bats. Also, you can build a bat house (Figure 2).
How to Build a Bat House

This bat house designed by Bat Conservation International (Figure 2) combines relative ease of construction with the varied crevice sizes most often used by American bats, and temperature buffering features. Western red cedar is recommended for its ability to withstand outdoor exposure, though many other woods are suitable. Six feet of 1x12in board and 10ft of 1x10in board are sufficient for construction. (Actual board sizes normally are about 3/4x9-1/4in.)

Dimensions may be varied to allow for slight differences in board widths or personal preferences, but spacing between partitions should remain approximately the same. Use rough lumber and turn all rough sides inward. The rough side of the ceiling should face down. Cut 1/16in horizontal grooves at 1/2in intervals on the smooth sides of all partitions. This enables bat climbing and roosting. Apply a bead of silicon caulk along each exterior joint to prevent heat loss. The estimated cost of materials is less than $20, and a single house may be occupied by 100 or more bats.

Notes: Do not let the space between inner partitions exceed 1in. When house is completed, hang it 12-15ft above the ground on a tree trunk or side of a building facing south or southeast so it catches the morning sun, but is in the shade during mid-day. Provide a watering station or locate your bat house near a natural water source to increase your chance of attracting bats.

Suggested Reading

For Bat Problems:


For Natural History: