



UNIVERSITY OF
FLORIDA

Cooperative Extension Service
Institute of Food and Agricultural Sciences

Bats In Buildings¹

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Bats are highly beneficial wild mammals. They are not flying rodents, but belong to a unique order of mammals called the Chiroptera (chiro= hand, ptera= wing). Bats are more closely related to primates (monkeys and humans) than they are to rodents. There are two families and 18 species of bats in the eastern United States. Fourteen species can be found in Florida. All these bats feed on night-flying insects. Each bat eats about its weight in food every night. This means that even a small colony, numbering several hundred individuals, consumes hundreds of pounds of insects every week. These insectivorous bats have tiny sharp teeth for chewing insects. Bats cannot use their teeth to gnaw wood or wires as can rodents with their chisel-like incisors.

During the day bats rest in dark secluded roosts, such as caves, hollow trees, under bridges, crevices, and the attics of buildings. In winter when insects are scarce, some bats migrate like some birds do, while others hibernate in caves, trees, or buildings. Most bats in Florida enter torpor (a form of deep sleep) during the day and on winter nights when it is too cold for their insect food to fly. Most bat species only have one baby per year. So it takes bat populations a long time to recover from human acts of destruction. Bats are long lived animals. The little brown bat from the northern states is known to live up to 30 years. Bats in Florida can probably live 10 to 12 years. Bats are creatures of habit and will frequent the same roost year after year, even if they only use it seasonally.

Bats are often feared as carriers of rabies. Bats can become infected with the rabies virus as can dogs, cats, raccoons, and skunks. But unlike these animals, rabies-infected bats do not generally become enraged and attack people or other animals. They usually become paralyzed and die quietly. The infection rate for house-dwelling bats is very low, ranging from 1 per 2000 (0.05%) in the southeastern bat to 4 per 1,130 (0.35%) in the Brazilian free-tailed bat.

BAT IDENTIFICATION

A guide to the bats of Florida is included in this publication. Table 1 summarizes the natural history of Florida bats.

REMOVING SINGLE BATS FROM A BUILDING

Despite their importance as insect predators, bats can be a nuisance when they choose to live in houses, buildings, or other structures used by people. Problems such as noise, smell, accumulations of feces (guano) and urine, staining and spotting of surfaces, attraction of other pests such as flies or cockroaches, and the general fear of these mammals by the public may require that they be excluded from a structure.

Single bats occasionally enter buildings accidentally. This usually occurs in the spring or fall, when bats move between winter roosts and maternity roosts, or in the late summer when young bats have

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Table 1. Bats of Florida.

Common Names	Species	Distribution In Florida	Habitat		Notes
			Summer	Winter	
Southeastern Bat	<i>Myotis austroriparius</i>	Northern 2/3 of the state	Caves, trees, buildings	Caves	Common building inhabitants
Gray Bat	<i>Myotis grisescens</i>	Panhandle	Caves	Caves	Endangered Species
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Panhandle	Hollow Trees, buildings	Caves	Very rare in Florida
Indiana Bat	<i>Myotis sodalis</i>	Panhandle	Hollow Trees, under loose bark	Caves	Endangered Species. Very rare in Florida
Little Brown Bat	<i>Myotis lucifugus</i>	Panhandle	Hollow Trees, buildings	Caves	Very rare in Florida
Eastern Pipistrel	<i>Pipistrellus subflavus</i>	Northern 2/3 of the state	Trees	Caves	Rarely enter houses
Big Brown Bat	<i>Eptesicus fuscus</i>	Northern 1/2 of the state	Buildings and under bridges	Caves, attics	Uncommon in Florida
Red Bat	<i>Lasiurus borealis</i>	Northern 1/3 of the state	Trees (foliage)	Trees (foliage)	Tree bat
Seminole Bat	<i>Lasiurus seminolus</i>	All of state except Everglades region	Tree foliage, Spanish moss	Tree foliage, Spanish moss	Tree bat
Hoary Bat	<i>Lasiurus cinereus</i>	Migrants found only in N. Florida	Absent	Trees	Migrate through state in fall/spring
Northern Yellow Bat	<i>Lasiurus intermedius</i>	Entire state	Trees, palms, Spanish moss	Trees, palms, Spanish moss	Tree bat
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	Panhandle	Trees	Trees	Very rare in Florida
Evening Bat	<i>Nycticeius humeralis</i>	Entire state	Buildings, hollow trees	Hollow trees	Common building inhabitant
Rafinesque's Big-eared Bat	<i>Plecotus rafinesquii</i>	Northern 2/3 of the state	Abandoned buildings, trees	Same as summer	Rare in Florida
Brazilian Free-tailed Bat	<i>Tadarida brasiliensis</i>	Entire state	Buildings, bridges	Same as summer	Common building inhabitant
Wagner's Mastiff	<i>Eumops glaucinus</i>	Southern 1/4 of the state	Spanish tile, woodpecker holes	Same as summer	Largest resident bat in Florida; endangered

just learned to fly. Young bats can become confused, get lost, and turn up inside buildings where they don't belong. In most cases, all that is required is that access for escape be provided by opening a door or window. In cases where that is not possible, as in most air conditioned buildings, a bat can be captured by covering the resting individual with an empty coffee can. Then gently slide a piece of cardboard or heavy paper between the container and the surface on which the bat is resting, trapping it inside (Figure 1). Small groups of bats, numbering fewer than 10 individuals, can also be removed in this way. If a small bat is resting quietly, it may be possible to pick it up while wearing heavy leather gloves. Never touch a bat with bare hands, it will bite to defend itself, as would any wild animal. Do not try to catch a flying bat; this is almost impossible and usually results in

injuring the animal. After the bat is captured, take it outside, away from children and pets and let it fly away or place it high on the side of a tree or wall to fly away on its own. A torpid (cold and sleepy) bat will need to "warm up" before it can fly.

If anyone is bitten, cleanse the wound thoroughly with soap and water and call your county health department for information and instructions. Try to collect the bat so it can be tested for rabies. NEVER pick up a bat you find lying on the ground. Keep children and pets away from it and if necessary move it to an inaccessible spot with a shovel or similar implement. Call the county animal control office to have the bat removed.

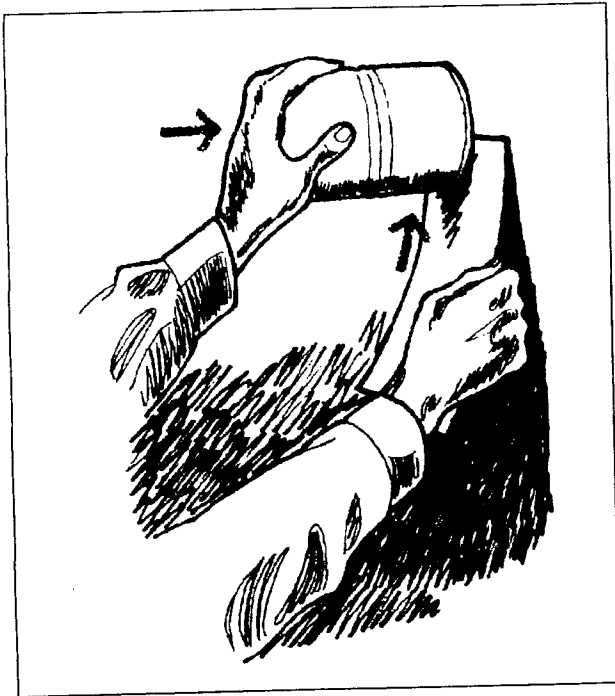


Figure 1. Capturing a single bat indoors with a coffee can and piece of cardboard.

CONFIRMING THE PRESENCE OF BATS IN A BUILDING

The presence of a bat colony in a building is often confirmed by seeing bats emerge from various openings at dusk. Squeaking and rustling noises coming from ceilings and walls may indicate a bat colony is present. The sounds may also come from mice or flying squirrels. Chirping noises coming from chimneys are usually made by nesting chimney swifts, which are small insect-eating birds. An opening, which can be as narrow as 1/4 inch, with a dirty stain below it may be the exit hole for bats (Figure 2). Stains come from urine, feces, and body oils that are deposited around the opening as bats enter or leave the roost. Droppings on sidewalks, ledges, patios, or underneath rafters in an attic or barn may indicate bats are present. Bat droppings, which are brown or black and resemble instant rice grains in size and shape, are composed entirely of insect parts. Mouse droppings are similar in size and shape but do not crumble between your fingers to reveal bits of insects. Gecko droppings are similar to bat droppings but the pieces of insects are larger, less chewed up, and have a small white ball of uric acid on one end. Cockroach droppings are usually smaller and have 6 flattened sides, making them hexagonal in cross section.

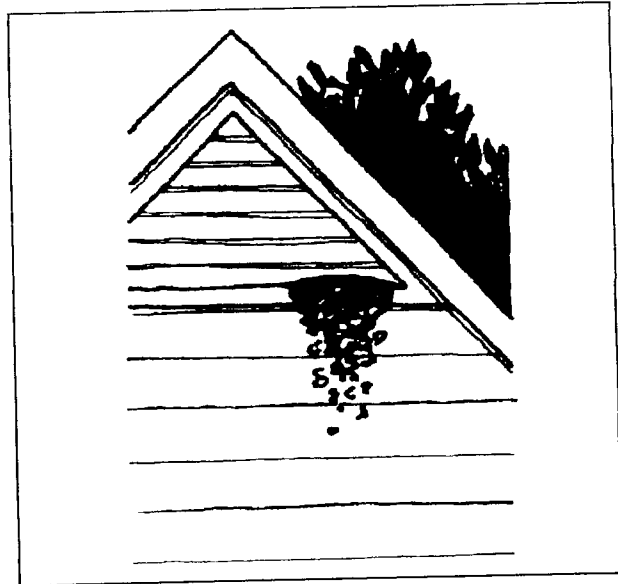


Figure 2. Entrance to a bat colony is indicated by staining around the opening and droppings below the opening.

BAT PROOFING

As with most nuisance animal situations, preventing a problem is much easier and cheaper than correcting one (Figure 3). To prevent bats from establishing themselves in a building, all attic and soffit vents should be screened with 1/4 inch hardware cloth or screen. Good ventilation of attics discourages bats from roosting and also discourages infestations of large peridomestic cockroaches. Vent holes in spanish tile roofs should be covered with screen that is held in place with silicon rubber chalk. Gaps in siding, spaces under warped fascia boards, spaces between house and chimney, and loose flashing and moldings should be sealed to exclude bats and other invading household pests.

EXCLUDING A BAT COLONY

When bats do become established in a building where they are not wanted, the best and most permanent solution is exclusion. This is accomplished by the following steps:

1. Observe the building at dusk from all angles on three or four successive evenings to identify the entrance and exit openings that the bats are using.
2. Seal and bat-proof all other openings that bats do not use, but might use in the future. Some species of bats can enter through a crack or crevice that is only 1/4 inch wide. Sealing

removing accumulated guano, spray it with a 1:10 bleach and water solution to hold down the dust and kill the fungus.

6. Permanently seal roost openings when you are sure all bats have left the roost. Leave the excluder in place for at least three days in warm weather, longer in cool or cold weather.

OTHER METHODS OF BAT EXCLUSION

Bright lights can be used to discourage bats from roosting in large structures that are difficult to seal, such as warehouses, barns, or similar buildings. Fiberglass insulation also discourages bats from roosting; this is probably due to the irritating nature of this material. Ultrasonic sound emitters for control of bats are expensive (\$20 to \$70) and there is no scientific evidence to indicate that they actually work. The animals simply move into sound shadows to avoid the sound.

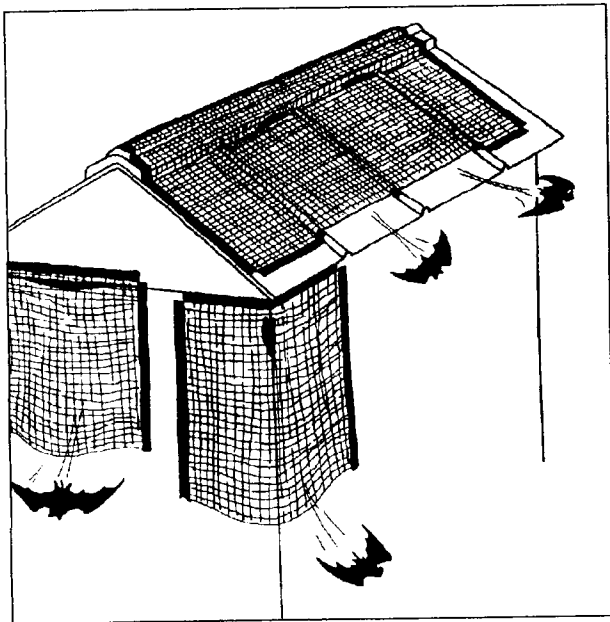


Figure 5. Use of bat/bird netting to exclude bats from a structure.

BATS AND THE LAW

Two species in Florida (the Indiana bat and the gray bat, which generally do not occur in buildings) are classified as endangered species by the U. S. Fish and Wildlife Service. In Florida, these and all other bats are classified as native nongame wildlife by the Florida Game and Fresh Water Fish Commission and are protected by law. Title 39-12.009 of the Florida

Wildlife Code (effective date July 1, 1992) states that nuisance or destructive wildlife may not be taken with a gun and light, steel traps, or poisons without a specific permit issued by the executive director of the FG&FWFC. **Since no poisons or fumigants are legal or registered for control of bats in Florida, the FG&FWFC cannot issue any permits to poison bats.** Poisoning a bat colony exposes people, especially children, and pets to large numbers of dead and dying bats, thus increasing the chance of someone being bitten by picking up a sick animal. Exclusion is the only recommended permanent solution to an unwanted bat colony in a building and does not require a nuisance animal permit. A nuisance wildlife permit is required to capture or kill any bats.

Naphthalene repellents are the only registered materials for bat control in Florida. However, use of this substance is not a permanent solution. Naphthalene evaporates and as soon as this occurs, the bats will return unless roost openings have been sealed. There is also the odor and expense of placing several pounds of naphthalene in a building where people live. If people are sensitive to the odor of moth balls, avoid using naphthalene. If naphthalene is used to repel bats from a structure, a nuisance animal permit is recommended to protect the user legally in the event that bats are accidentally killed.

BAT HOUSES

Since bats are beneficial, many people want to keep them in the neighborhood while excluding them from a building. This may be accomplished by putting up one or more commercially available bat houses. Figure 6 shows plans for a basic construction. Bat houses are similar to bird houses in size and shape. However, they lack a circular entry hole. Bats enter and exit the house from the bottom of the house, which has been left open. Bats will not leave a building to move into a bat house. But if a colony is excluded, bats may move into the closest new accommodations. A bat house should be placed high on the east side of a tree or building (10 to 15 ft.), as far in advance of the exclusion as possible. There should be no branches directly below the bat house to obstruct the entry or exit of bats. Plans for a bat house are available from:

Bat Conservation International
P.O. Box 162603
Austin, Texas, 78716-2603

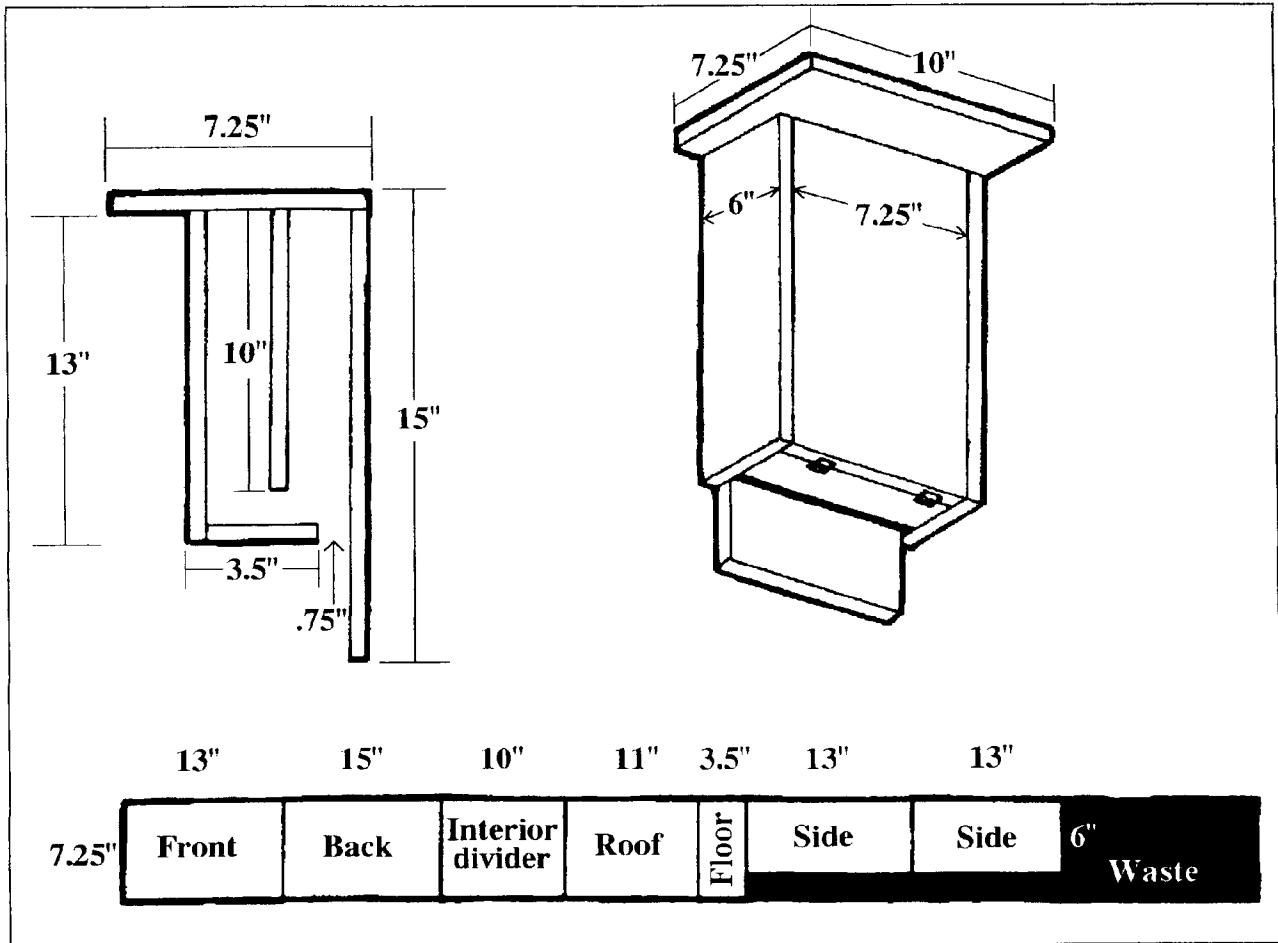


Figure 6. Plans for a simple bat house using one 1" x 8" board, 8ft. long.