WILDLIFE IN CONNECTICUT

INFORMATIONAL SERIES

BATS

Background Information

Bats are the only mammals capable of actual flight. Eight species of bats can be found in Connecticut:

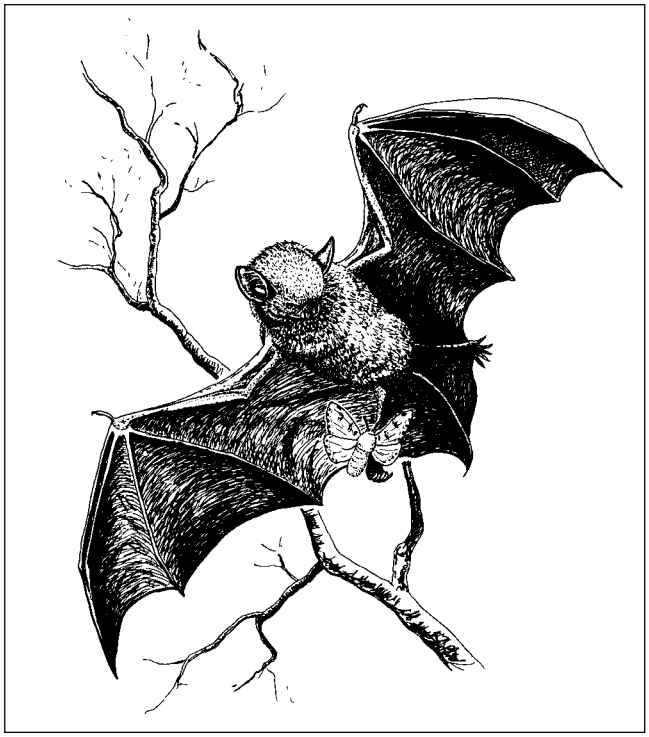
- Little Brown Bat (*Myotis lucifugus*)
- Big Brown Bat (*Eptesicus fuscus*)
- Eastern Long-eared Bat (*Myotis septentrionalis*)
- Eastern Pipistrelle (*Pipistrellus subflavus)*
- Silver-haired Bat (*Lasionycteris noctivagans*)
- Hoary Bat (*Lasiurus cinereus*)
- Red Bat (*Lasiurus borealis*)
- Indiana Bat (*Myotis sodalis*)

The 2 most common bats in Connecticut are the little brown and big brown bats. The 6 remaining species are less common and seldom seen. Silver-haired, hoary and red bats are tree-roosting bats and are listed as Connecticut species of special concern. The state and federally endangered Indiana bat was recently found hibernating in Connecticut. No confirmed sightings of the eastern small-footed bat (*Myotis leibii)* have been recorded here in several decades. It is a Connecticut species of special concern.

Description

Bats are furred, warm-blooded mammals with body lengths of 3 to 6 inches and wingspans ranging from 8 to 16 inches. The bones in a bat's wing are similar to those in human arms and hands. The fingers are extended and connected by leathery, elastic skin that grows from the sides of a bat's body. Their thumbs are free from the wing membrane and have claws for grasping.

Bats have good eyesight and rely on vision for long-distance orientation. For short-distance navigation and catching food at night, they use



Big brown bat chasing gypsy moth.

echolocation. This sonar system helps bats, like dolphins, locate targets and background objects from the echoes of ultrasonic sounds. These ultrasonic sounds are given slowly when a bat is foraging and quicken as the bat pursues and captures an insect. Detection, pursuit and capture of an insect take about 1 second.

Connecticut's bats are primarily insect eaters. An exception is the hoary bat, which also eats other bats, namely the eastern pipistrelle. Bats are mostly nocturnal and almost always feed "on the wing." They use their wings, the skin around their tails and their mouths to catch insects in flight. Bats are the only major predators of night-flying insects, making them beneficial to man in several ways. They consume many agricultural pests such as cutworm and corn borer moths, potato beetles and grasshoppers. Mosquitoes and similar "people" pests are eliminated much more efficiently by bats than by birds or expensive bug zappers.

Interesting Bat Facts

● In general, bats are not dangerous. Like any other mammal, they can carry rabies, although less than 1 percent of all bats are infected with the virus. More people die annually from dog attacks, bee stings, lightning and household accidents than from bat-transmitted rabies.

● Bats do not get caught in people's hair. Bats that swoop near people are usually after insects such as mosquitoes.

● A single little brown bat can eat 1200 mosquitoes in an hour.

● There are almost 1,000 different species of bats in the world, but only 8 are found in Connecticut.

● Only 3 species of bats feed on animal blood. These vampire bats prefer to drink cattle blood and are only found in Latin America.

● The smallest bat is the size of a small mouse; the largest, a fruit eater, has a 6-foot wingspan.

● Bats have varied diets: 70 percent eat insects; many tropical species eat fruit or drink flower nectar; some bats even catch frogs and fish.

Nuisance Problems

The presence of bats can be detected in several ways. At dusk, when bats leave roosts to feed, they may be seen exiting through eaves, vents or from behind shutters or siding. Noise from large colonies may also announce their presence. Droppings and dark brown stains may appear near eaves and beneath entrance holes and roosts. Bat droppings (guano) are easily crushed, revealing shiny bits of undigested insects. They are never white or chalky in appearance, as are the droppings of birds.

The 2 most common bats involved in nuisance complaints are the little brown bat and the big brown bat. The little brown bat ranges from 3.1 to 3.7 inches in length and has a wingspan of 8.6 to 10.5 inches. Big brown bats range from 4.1 to 4.8 inches in length, with a wingspan of 12.1 to 12.9 inches. Big brown bats can readily be distinguished from little brown bats in flight by their larger size, slow wingbeats and audible chatter.

A single bat that enters a home can often be removed easily. Closing off doorways to the room containing the bat and opening a window will usually prompt the bat to fly outside. A large jar or can may also be used to remove a bat. Move toward the bat slowly so that it is not startled and gently place the can over it. Slide stiff paper or cardboard under the can's opening, using it as a lid when removing the bat. Heavy leather gloves should be used to remove a bat by hand. Bats, like all wild animals, may bite when handled and should not be removed bare-handed. Remember that bats, like other mammals, may be a source of rabies. The rabies virus is found in saliva and may be transmitted through the bite of an infected animal. **If you are accidentally bitten while handling a bat, make sure the bat is saved for examination. Immediately wash the bite with soap and water and seek prompt medical advice.** Non-bite exposures can also occur and should be treated in the same manner as a bite. A non-bite exposure occurs when saliva or brain tissue from an infected animal enters scratches, abrasions, open wounds or mucous membranes (nose, mouth, eyes).

Most colonies of bats are small and often remain unnoticed for many years. Large colonies residing in an attic or wall may become a nuisance because of noise and unsightly guano accumulations. Eviction and exclusion of roosting bats are the only safe, permanent solutions to a nuisance problem. Numerous repellents and techniques may be used in an effort to evict nuisance bats.

Chemical Repellents: Mothballs (napthalene) placed in mesh bags may be hung in attics to discourage bats but are of limited value. The effectiveness of napthalene depends to a great extent on the amount of ventilation in a given roost; the better the ventilation, the lower the effectiveness. Napthalene also poses health risks to humans when used in quantity. Aerosol dog and cat repellents are useful in limited situations such as discouraging the use of a particular night roosting spot. They should never be applied while the bats are present. Direct contact is harmful to the bats and may cause them to fly at the "attacker" in their haste to get away.

Mechanical Repellents: Several mechanical repellents may help discourage bats. They are usually safer to humans than chemical repellents. Illumination of an attic or eaves with floodlights often discourages residence. Attics may also be cooled with fans to make the temperature unsuitable for roosting. Ultrasonic devices are seldom successful.

Exclusion and Bat-proofing

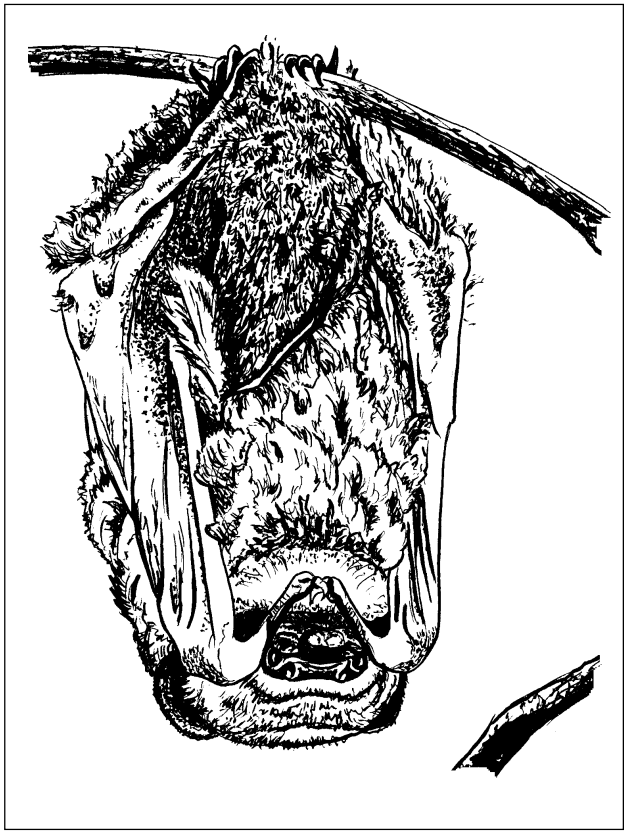
One of the simplest techniques for solving nuisance problems is letting the bats exit on their own and then preventing their re-entry to the roost. Little brown bats do not winter in buildings, so bat-proofing can be done after they travel to their winter roost site. Big brown bats usually travel to other roosts also, but they have been known to use building roosts in the winter. If nuisance problems involve big brown bats or if rapid exclusion is necessary, the first step is to find the exit(s) by watching the bats emerge at dusk. Stains from body oils or droppings may help pinpoint exits.

A simple one-way exclusion gate can be made using half-inch polypropylene structural-grade bird netting. During the day, hang the netting around the exits, using staples or duct tape. The netting should be attached several inches above the exits and extend at least 2 feet to either side and below the exit. The sides may be attached, but the bottom must hang free. As bats leave to feed, they will drop out of the roost unhindered. When they return, they will be unable to fly directly into the roost. These exclusion nets should be left in place for 3 or 4 nights to insure that no bats remain in the roost. After exclusion, the openings can be repaired when convenient. Caulk, fine screen and oakum (petroleum-soaked rope) are all easy ways to seal openings. **Exclusion should not be done from June through mid-August, as flightless young may be trapped and die in the roost, causing severe odor problems.**

Another simple one-way excluder can be made from plastic strips. In a section of flexible plastic, cut small strips (about 1 inch wide) that will serve as tiny door flaps. The bats can push past them to exit, but the strips will not flex inward to allow re-entry. This excluder should be installed in the same manner as the bird netting.

Exclusion of bats from Spanish or concrete tile roofs is often as simple as installing a rain gutter. The gutters should be installed flush against the attachment surface. The upper edge of the gutter should be even with the lower edge of the tile, extending outward about 8 inches. This exclusion can be done any time, because the bats are still able to leave. Bats dislike climbing over the slippery metal gutter and usually will not return.

If you prefer to hire someone to exclude and bat-proof your home, it is best to seek a specialist. If the bats need to be trapped or handled, the specialist must be licensed by the DEP Wildlife Division. As with any business dealing, it is advisable to get more than 1 estimate for the job. Beware of scare tactics, and remember:



Connecticut's largest bat, shown at life size, is the hoary bat (Lasiurus cinereus). *Its dark brown fur is heavily tinged with white, giving the bat a frosty appearance.*

- Bats do not multiply like rabbits.
- Even sick bats rarely attack people or pets.
- Bats are not attracted in hordes by the scent of other bats.
- Bats have very few parasites, so additional spraying for parasites is not necessary.
- Permanent physical exclusion is essential for any bat control job.
- The use of poisons to eliminate a bat colony is illegal without a special permit.
- Bat guano is not "toxic"
- Rabies rates in bat populations are not increasing

Small Bat House

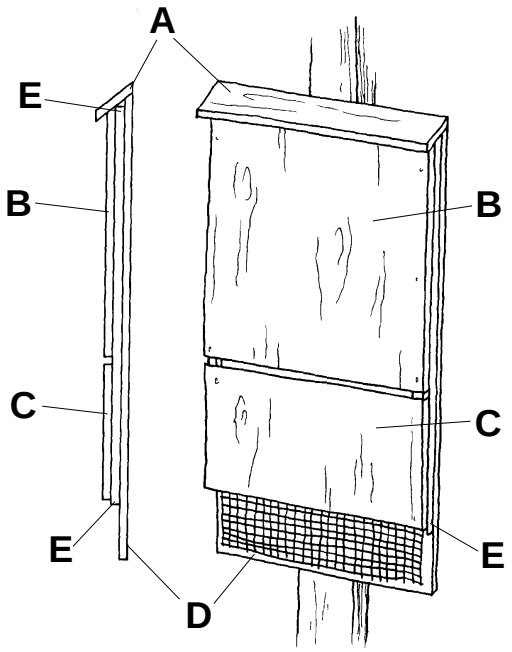
Use rough-cut lumber or exterior grade plywood ($^1/_2$" thick minimum). The furring strips (**E**) should have a finished thickness of approximately $^3/_4$".

Staple $^1/_8$" mesh (HDPE plastic) netting to back and front 2 sections. Make sure mesh extends to bottom of back.

Caulk all pieces and assemble with drywall screws to prevent wood from splitting. Apply additional caulk to outside joints as needed.

Apply dark stain to exterior surfaces and use tar paper or shingles on the roof and the top half of the bat house to increase interior temperatures.

A Roof 4"x14"
B Upper front 12"x20"
C Lower front 12"x10"
D Back 12"x36"
E Spacers (1) 2"x12", (2) 2"x30$^1/_2$"



Large Bat House

Use $^1/_2$" exterior grade plywood for front and back sections; $^1/_4$" for all partitions. Sides are 1"x6" stock.

Staple $^1/_8$" mesh (HDPE plastic) netting to all partitions and the back panel. Apply caulk to all joints.

Begin assembly by screwing the back to the sides. Attach 31" spacers to inside corners.

Place a partition on top of the spacers to within about $^1/_2$" of the roof. Put the next set of spacers (26") on top of the partition and screw into the first spacers.

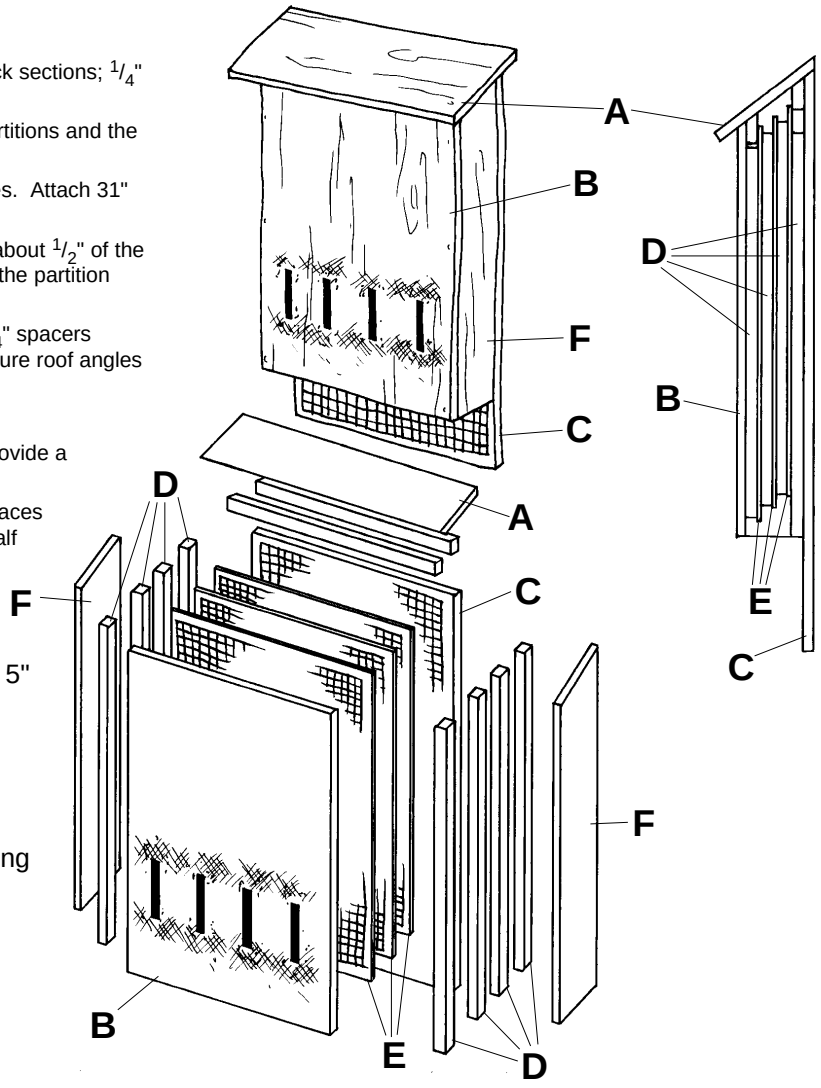
Repeat for remaining partitions ending with 28$^3/_4$" spacers (flush to roof line). Screw front to sides. Make sure roof angles are aligned.

Screw roof in place and caulk all exterior joints.

Scratch or roughen the front near the vents to provide a toe hold for bats landing on the box.

A dark stain should be applied to all exterior surfaces and tarpaper or shingles to the roof and upper half of the house to increase interior temperatures.

A Roof 6"x28"
B Front 24"x28$^3/_4$" (cut slots for vents, 5" above bottom edge)
C Back 24"x36"
D Spacers 1"x2" (4) 26" long, (2) 31" long, (2) 28$^3/_4$" long
E Partitions $^1/_4$" thick, $^3/_4$" apart, 26" long
F Sides 4"x28$^3/_4$"x31" (angle-cut top edges)



A list of state-licensed Nuisance Wildlife Control Operators (NWCOs) who handle bat control projects can be obtained by contacting the DEP Wildlife Division.

Be careful when removing bat droppings from indoor roosts. Histoplasmosis, a fungal disease associated with the droppings of birds and bats, can result from the disturbance of dried droppings. Disturbance causes the fungal spores to become airborne, and spores entering the lungs can cause respiratory problems. However, histoplasmosis is seldom fatal; mild cases are common and often go unnoticed. Hot, dry attics rarely allow the spores to survive; thus, this disease is much more common in chicken roosts than in indoor bat roosts. Histoplasmosis is easily preventable--wearing a mask when removing accumulations of droppings prevents inhalation of the spores.

Bat Houses

If you want bats out of your house but would like to retain them for their excellent insect control abilities, why not consider building or installing a bat house? Bat houses, much like bird houses, provide artificial roost sites for bats. They have been widely used in Europe for over 60 years. Much has been learned in recent years about bat roosting preferences. The following factors are critical to the success of bat houses: maintaining suitable temperature ranges, the distance to food and water, the size and shape of inner roosting spaces and the roughness of clinging surfaces.

Bat house designs range from simple and small-scale to large and complex. Two of the simpler designs are shown on opposite page. The small bat house provides only one size roosting space and accommodates fewer bats. The large bat house provides many roosting options and is ideal for larger nursery colonies of females and young. Below are tips for constructing and installing a bat house:

1) Use the roughest sides of the wood on the inner areas of the house. It is also a good idea to horizontally groove inner surfaces for footholds or attach non-metal screening to provide toe holds. This is also important for landing areas below the entrance.

2) Caulk all outside seams to limit air flow. This helps trap the bats' body heat inside the house. Sealants approved for aquarium or kitchen use are best.

3) Place tar paper or dark shingles on the top and 4 to 6 inches down the side to increase inside temperatures. Nursery roosts often require temperatures of 90 degrees F or more. A dark stain also helps increase the temperature.

4) Hang houses 10 to 15 feet above ground. South and southeast exposures are best for providing maximum thermal gain. Bats prefer houses that get at least 6 hours of sunlight a day.

5) If possible, protect the house from prevailing winds and provide an unobstructed approach.

Bat houses attached to the sides of buildings have had the greatest reported success. Free-standing poles in open areas also work, but tree-mounted houses generally remain unused. Bat houses placed near water or wetland areas often are most successful Installing a bat house before April improves the chance of occupancy. Don't be discouraged if bats do not immediately move into their new home. It is not unusual for a house to stand empty for at least a year before it is used.

To assist in conservation efforts, please report any bat house successes or failures to the DEP Nonharvested Wildlife Program. A postpaid bat house survey card is available upon request from the Nonharvested Wildlife Program.

For more information on bats, contact:

Department of Environmental Protection
Nonharvested Wildlife Program
Sessions Woods Wildlife Management Area
P.O. Box 1550
Burlington, CT 06013-1550
(860) 675-8130

Bat Conservation International, Inc.
P.O. Box 162603
Austin, TX 78716
(512) 327-9721

For more information on rabies, contact your local health department.

References and Additional Reading

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CT D.E.P. Wildlife Division Nonharvested Wildlife Program

The Connecticut Department of Environmental Protection Wildlife Division's Nonharvested Wildlife Program was formally established in 1986 through Public Act 86-370. Program activities center around the inventory, research, management and conservation of wildlife species that are not traditionally hunted. These include songbirds, raptors, shorebirds, small mammals, reptiles, amphibians and invertebrates.