

Create Roosts for Bats in Your Yard

S. Chambers and N. Allen

For many years, fear and ignorance have led humans to kill large numbers of bats. Bats have lost much of their habitat. Many sites that bats use for shelter, such as old-growth trees, dead trees or **snags**, wooden barns and bridges, and caves, have been destroyed or vandalized. Bats also have suffered from pesticide use.

But, people finally are recognizing that bats are a vital part of a healthy ecosystem. One way you can help bats survive is to create habitat for bats in your yard. Creating habitat for bats can be as simple as putting up a bat house. This publication offers information on bats and ways to create roosting habitat for them.

Debunking popular myths about bats

Bats do not entangle themselves in people's hair

The term "blind as a bat" is inaccurate. Bats are not blind; most have good vision. They also locate objects using **echolocation**, which means they can detect sound waves bouncing off of objects. They are very skillful at locating and avoiding objects as they fly. Bats will not

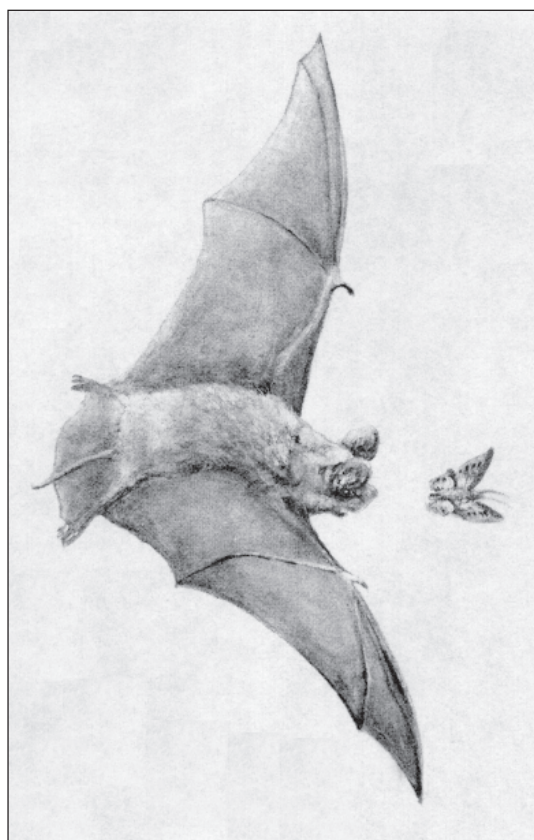


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become entangled in your hair or otherwise attack you. If they do fly near you, it may be that they are hunting insects that are attracted to you.

Bats don't all carry rabies

Worldwide, most human rabies infections come from domestic animals such as cats or dogs. Bats can carry rabies, but the percentage of infected bats is very small, less than 0.05 percent.

Your chances of being bitten by a bat are very small. But, bats that seem to be injured or unhealthy might have rabies or other diseases. Do not handle them.

No bats in the United States feed on blood

Bats that consume blood, called vampire bats, live only in Latin America. Their primary food source is livestock. These little bats ingest very small amounts of blood from the animal and do not hurt it. Healthy bats do not prey on humans.

Bats' importance to our ecosystem

Bats play an important role in controlling insect populations. In North America, bats are the primary predators of night-flying insects. Some species of bats can capture several hundred insects an hour, including insect species that can devastate valuable plants or crops.

In tropical areas and deserts worldwide, bats play a vital role in pollinating plants and spreading seeds. Bats that lap nectar (called **nectivorous** bats) pollinate important economic crops such as bananas, peaches, and mangoes. Thus, bats are important to the economy as well as to the environment.

Native species

There are 15 kinds or **species** of bats in Oregon. All 15 species can be found east of the Cascade Mountains, and 12 of the 15 on the west side.

The little brown bat, long-legged bat, and big brown bat are three of the most common bats found in Oregon. Others include the yuma myotis, pallid bat, Mexican free-tailed bat, and California myotis. The Western pipistrelle is found in eastern Oregon. It is the smallest bat in the U.S., weighing just over $\frac{1}{10}$ of an ounce!

Natural history

Bats range in size from 3 to 5 inches long and weigh less than an ounce. For their size, bats are the world's longest-lived mammals. Their average life span is probably 4 to 8 years, but some bats are known to live more than 20 years in the wild.

Bats mate in the fall, but for most Oregon species, the egg is not fertilized until after the bats awaken from hibernation the following spring. (This is called **delayed fertilization**.) After mating, 3 of the 15 Oregon species migrate to warmer regions for the winter. The rest seek out a good place to hibernate for up to 6 months, from October to April.

In order to stay alive through the winter, hibernating bats need a place that allows them to keep their average body temperature a couple of degrees above freezing. They use caves, buildings, rock crevices, or hollow trees for shelter.

It is very important not to disturb hibernating bats. If you disturb them, they might need to use stored fat reserves that are meant to get them through the winter. This can cause them to starve. Bats might be active on warm winter days, but normally they do

not awoken from hibernation until springtime.

In the spring, pregnant females roost together and bear their young in what are called **nursing colonies**. Females that are not pregnant and males roost in other places. Unlike other mammals of their size, bats have very low reproductive rates, with females of most species producing just one pup per year. Typically, a single baby bat is born after 1½ to 2 months of pregnancy. The young remain with their mothers in nursing colonies for about 3 weeks before they can fly.

Bats are **nocturnal** creatures, which means they are active mostly at night. Generally, they do not venture out of their roosts before dusk. Some species emerge at dusk to feed, while others wait until the sky is darker before they come out.

Elements of bat habitat

Like all animals, bats need food, water, and shelter. A suitable habitat for bats also includes the right temperature, a pesticide-free environment, and roosting places where the bats will not be disturbed.

Food

All of Oregon's bats are **insectivores**. This means that their primary food source is insects. They eat a variety of insects in the air and on the ground. Some of their favorites are moths, grasshoppers, mosquitoes, spiders, ants, beetles, and flies.

You can attract bats to your yard by planting spearmint, phlox, stock, and nicotiana, which attract night-flying moths that bats eat.

Water

Most species of bat require an open water source within a mile of their primary roost. Typically, this could be a stream, pond, lake,

or river. Bats have been known to use large water troughs for livestock if they are kept full of clean water.

Shelter

Bats spend more than half of their lives in roosts. They spend an hour or two foraging and then rest in night roosts, which usually are close to food sources. They may hunt again before dawn, and then they return to their day roost. Bats often use bat houses for their nurseries or day roosts.

In winter, bats tend to choose cool places to hibernate such as caves, rock crevices, and cavities in rocks or trees. During the rest of the year, they use a variety of other roosting sites, such as under bark, in foliage, in buildings, and under bridges. Roosting needs usually are specific for each species.

No insecticides

If you want to attract bats to your yard, do not use insecticides. Insecticides not only kill the insects that bats eat, but they also can harm the bats directly. In many cases, bats keep insect populations low enough that there is no need for insecticide use.

Bat houses

Whether you build or buy a bat house, be sure to contact Bat Conservation International (BCI) for the most current list of "bat-approved" bat houses. If you would like to build your own, you can order *The Bat House Builders Handbook* from BCI. You can buy a ready-made bat house from BCI or the Oregon Department of Fish and Wildlife (see "For more information," pages 7–8). Bat houses also are available at some home and garden or specialty stores. Be sure that these bat houses match the specifications given by BCI.

The big brown bat, little brown bat, yuma myotis, pallid bat, Mexican free-tailed bat, and California myotis all are known to use bat houses in Oregon. The little brown bat uses bat houses most commonly.

Good design

There are certain design elements that increase the chances that bats will use your bat house. It should be at least 2 feet tall and 14 inches wide with a 3- to 6-inch landing extending beyond the bottom of the house (Figure 1). The inside can have one or more chambers which are partitioned $\frac{3}{4}$ inch apart. A bat house for nursing colonies should have 3 to 4 chambers and be able to house up to 200 bats (Figure 2).

Bats prefer a surface they can grip on both the roost partitions and landing areas. Either rough wood or plastic mesh stapled to these places works well.

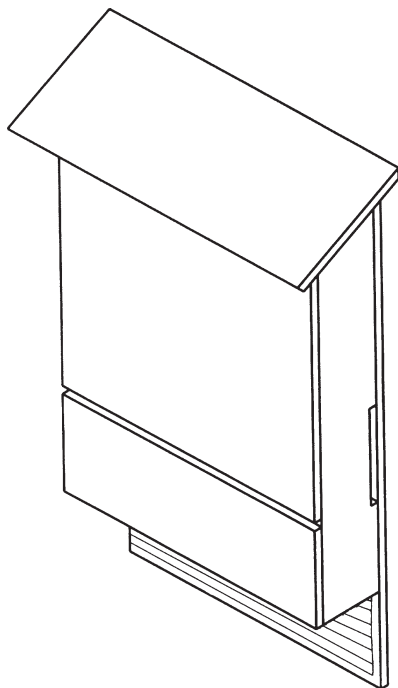


Figure 1. Bat house design. Illustration reprinted with permission from Bat Conservation International, Inc.

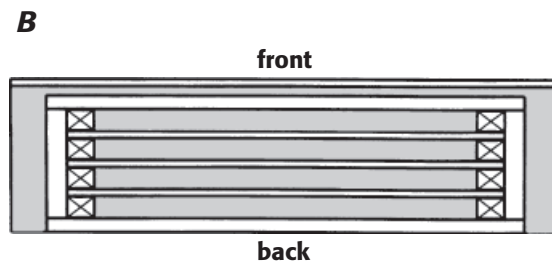
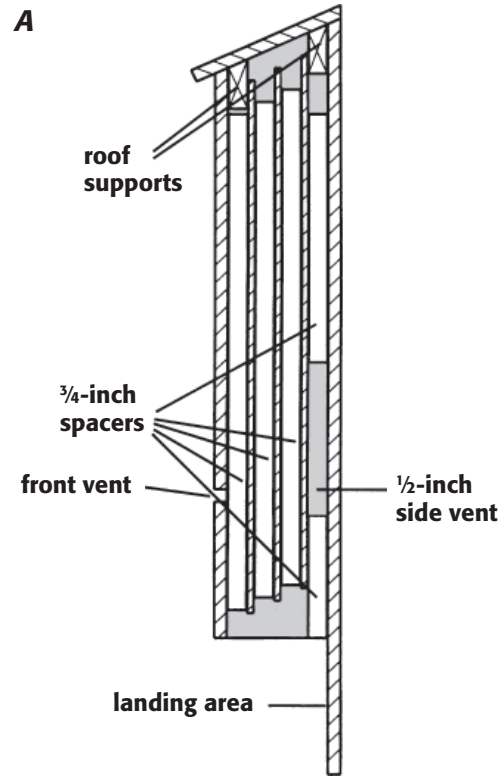


Figure 2. A nursery house for bats. (A) Side view. (B) Bottom view. Illustration reprinted with permission from Bat Conservation International, Inc.

Bats (like humans) prefer houses that are well insulated and are not drafty or wet. Your bat house should be covered with at least two coats of exterior latex paint to prevent moisture and air leaks and wood decay. It should be painted a dark color and have vents (see “Temperature,” page 5).

Where to place the bat house

Bats prefer to hunt for food in areas that have a variety of vegetation and that are near water, so bat houses are most successful in those places. Preferred habitats include orchards and other areas that mix agricultural and natural vegetation. Nursery colonies of bats are usually within 1 mile of a natural water source. If possible, place a bat house along a natural flyway for bats, such as borders of streams, rivers, and lakes, or on forest edges.

Do not place bat houses near the ground because of predators (climbing snakes, raccoons, house cats, and owls), or in dense vegetation because it obstructs their flight. The ideal bat house spot would be 15 to 30 feet above the ground attached to a pole or the side of a building (Figure 3). Bat houses attached to trees are not as successful, probably because they get less sun and are more exposed to predators.

To attract nursery colonies, group three or more bat houses together, mounted either back-to-back on a pole or next to each other on a building. The females can move their young between houses to find the best temperature and to evade parasites.

Temperature

Proper sun exposure is very important for bat houses to be successful. They need to receive 8 to 10 hours of direct sunlight daily.

You can modify your bat house to create favorable temperatures based on the climate where you live. If the average daytime temperature in July is less than 80°F, paint bat houses black to increase solar heat retention. If average daytime temperature in July is between 80 and 100°F, paint the house a medium color, such as tan, and place it where it will get 6 hours of sunlight a day.

Where temperatures are greater than 85°F, add ventilation slots to the bat house so roosting bats won't overheat. Make the slots

½ inch wide to minimize light and keep out predators. Do not cover the ventilation slots with plastic mesh, because it could obstruct the airflow and cause the bats to suffocate.

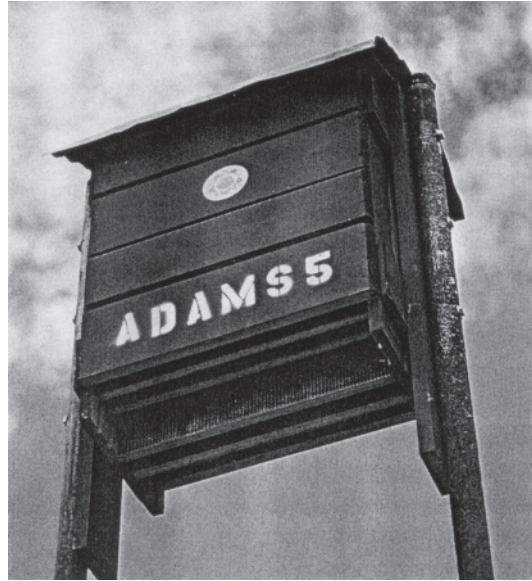


Figure 3. Two bat houses mounted back to back. The houses are mounted 15 feet high on poles to protect the bats from predators and to increase exposure to sun.

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If you are grouping more than one house, you can paint them different colors and see which ones the bats use.

Maintenance

Bat houses need very little maintenance. Houses that have been caulked and painted carefully might not need repairs for several years. If needed, recaulk and paint in the winter when bats are not likely to be there.

Bat droppings can pile up underneath your bat house. Remove them regularly. You can use them as fertilizer in your garden.

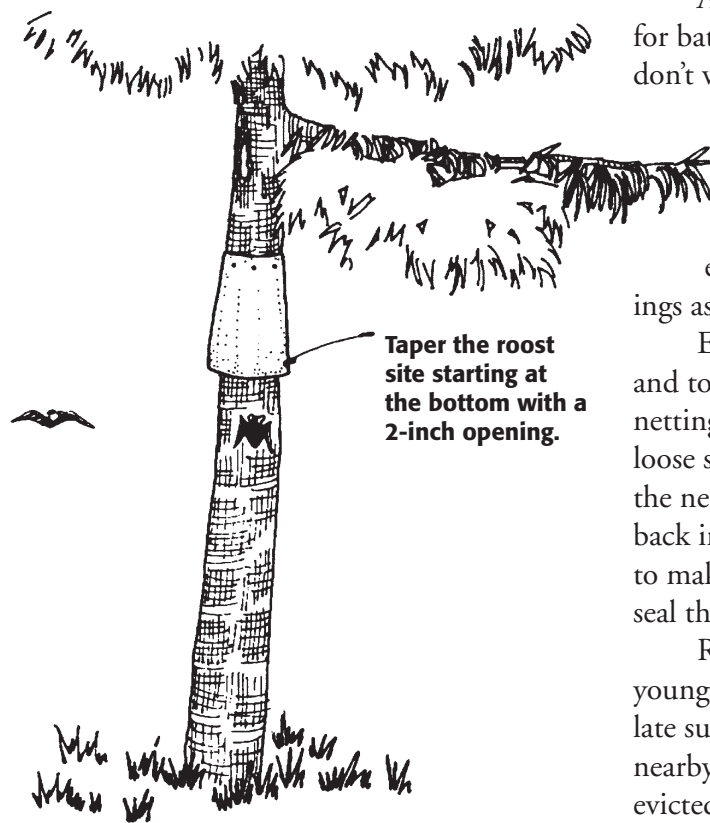


Figure 4. A “bat wrap,” a quick and easy roost site for bats. Keep the area below the roost free of side branches. Because bats need a high roost, full sun, and free access, large conifers are the best trees for bat wraps.

Illustration from: *Landscaping for Wildlife in the Pacific Northwest*, University of Washington Press and Washington Department of Wildlife.

Simple roosts

Many bats roost under loose bark on trees in the summer. You can create a similar kind of roost by wrapping a 24- to 36-inch-wide piece of plastic, sheet metal (regular or corrugated), or fiberglass around a large tree (Figure 4). Place the roost as high up as possible and where there is most sun exposure. Attach the top firmly and let the bottom flare out about 1 or 2 inches.

Bats in your house

An attic can be an ideal roosting place for bats. If bats are using your attic, and you don't want them there, hang bird netting (available at garden stores) over the opening they are using to get in. If you don't know where the opening is, watch at dusk to see where they emerge. Bats can get in through openings as small as $\frac{1}{2}$ inch in diameter.

Extend the netting at least a foot below and to each side of the opening. Tape the netting in place, but leave the bottom hanging loose so the bats can get out of the attic. Later, the netting will prevent them from getting back in. Keep the netting up for a few nights to make sure all bats have emerged, and then seal the opening.

Remove bats at a time when flightless young are not present, such as early spring or late summer. If you have a bat house ready nearby, they might move in once they've been evicted from your attic.

In the unlikely event that a bat enters the living space of your house, stay calm! A healthy bat will not hurt you. Most likely, it entered your house by accident. If possible, confine the bat in a room, open a window or door, and turn off the lights. Keep in mind that bats are nocturnal: it could be evening

before the bat leaves, but it should leave without further problems.

If this tactic doesn't work, you can try capturing the bat with a net. Or, if the bat is against the wall or other flat surface, approach slowly and place a large plastic container or jar over the bat. Gently slide a piece of stiff paper or cardboard under the opening to use as a lid. Then, take the bat outside to an open area and release it. Be sure to wear leather gloves. *Never* try to handle a bat.

Observing bats

A chance to watch bats in their natural setting is one of the benefits of attracting bats to your yard. But, because they are night creatures, they can be hard to see! To make it easier to watch them, you can install lamps in your yard. Not only will it be easier to see the bats, the lights also attract the insects that draw bats to feed.

If you want to count how many bats are using your bat house, watch for them to emerge at dusk.

For more information

OSU Extension publications

See these other publications in The Wildlife Garden set:

Attract Hummingbirds to Your Garden,
EC 1541 (2002).

Attract Reptiles and Amphibians to Your Yard,
EC 1542 (2002).

Create a Garden Pond for Wildlife, EC 1548
(2002).

Create a Butterfly Garden, EC 1549 (2002).

Feed Wild Birds, EC 1554 (2002).

Build Nest Boxes for Wild Birds, EC 1556
(2002).

Reduce Deer Damage in Your Yard, EC 1557
(2002).

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Copies of our publications and videos also are available from OSU Extension and Experiment Station Communications. For prices and ordering information, visit our online catalog or contact us by fax (541-737-0817), e-mail (puborders@oregonstate.edu), or phone (541-737-2513).

Other publications

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1969. *Bats of America*. University Press of Kentucky, Lexington.

Fenton, Brock M. 1992. *Bats*. Roundhouse Publishing Limited, United Kingdom.

Hill, John E. and James D. Smith. 1984. *Bats, A Natural History*. University of Texas Press, Austin.

Novak, Ronald M. 1994. *Walker's Bats of the World*. Johns Hopkins University Press, Baltimore.

Tuttle, Merlin D. 1997. *America's Neighborhood Bats*. University of Texas Press, Austin.

Tuttle, Merlin D. and Donna L. Hensley. 1993. *The Bat House Builders Handbook*. Bat Conservation International, Austin, Texas.

To order a bat house

Bat Conservation International. For more information about bats, BAT Magazine, or membership in BCI, please visit the BCI web site at <http://www.batcon.org> or write or call: Bat Conservation International, Inc., P.O. Box 162603, Austin, TX 78716, 512-327-9721. For a donation in any amount, you will receive bat house plans and information about bats. Basic membership, which includes a 1-year subscription to BAT Magazine, is \$30.

Oregon Department of Fish and Wildlife,
503-872-5264, extension 5366.

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