



Nest Boxes for Your Backyard Wildlife Habitat Project

Information provided by the Cornell Nest Box Network

Why provide and monitor nest boxes?

Most people, when they think of forests, imagine tall, healthy trees. But forests also have decaying and dead trees, or snags. Although seemingly unimportant snags are valuable to many birds species that depend on them for breeding sites. These dead and decaying trees contain natural cavities in which birds can raise young.

As forests are cleared to make way for development, habitats essential to the survival of many birds are being destroyed. Not only is there a reduction in the number of live trees, but dead and decaying trees are being lost as well. Because there is intense competition among cavity-nesting birds for a limited number of breeding sites, many of these species are decreasing in population.

Non-native, or "exotic," cavity-nesting birds such as the House Sparrow and European Starling make this competition even more intense. These two species, introduced to North America in the 1800s, have easily adapted and compete with native species for nesting cavities. And all cavity nesters must compete with other animals, including squirrels, mice, bees, and wasps, which also rely on natural cavities for their existence.

For some time, people with an interest in the plight of cavity-nesting birds have been building and putting up nest boxes. Because many species readily nest in these nest boxes, people who provide them are, in essence, creating nesting opportunities for these birds. Such human intervention may prevent population numbers of these birds from further decline, despite the destruction of their natural habitat.

For many people, putting up nest boxes starts out as a minor interest or hobby and soon turns into a full-time weekend occupation. The reason? People can see first-hand the fruits of their endeavors. Every time an Eastern Bluebird, Tree Swallow, or other cavity nester chooses to nest in a box they have put up, they feel gratified. By providing nest boxes, people can take personal satisfaction in doing something good, both for their fellow creatures and for the environment. And doing something good feels good.

Besides personal satisfaction, nest boxes provide an opportunity for people to learn about birds and the natural world. Every time people open a nest box, they peek into the lives of the birds occupying the box. Regular checks enable people to witness the labors of parent birds, from the time they painstakingly build their nest, up to the time they coax their nestlings out of the box to take their first flight.

Moreover, citizens who take part in nest-box monitoring and submit their observations to scientists are contributing valuable information to an ever-expanding body of knowledge about cavity-nesting birds. By sharing what they find, nest-box monitors help to answer questions about birds and increase the overall knowledge and understanding of nature and the world around us. To capture accurately the details of bird biology and behavior on a broad scale, the scientific community needs the input of citizen monitors and amateur birders nationwide. Scientific inquiry can be carried out by people of all ages—from preschoolers to senior citizens. And when scientific inquiry is encouraged at an early age, youth are primed for a lifetime of scientific literacy.

After seeing an Eastern Bluebird curiously investigate and choose to nest in a box that you have built or placed, you may begin to feel the "nest-box fever" that infects many people across the country. If you

get started.

Where to Put Nest Boxes

Because different species of birds prefer different kinds of nesting habitat, the habitat surrounding your box will play a role in determining which species will nest in it. You may be limited in the habitat you have available. If your property consists primarily of fields, you will be more likely to attract species such as Tree Swallows and bluebirds that prefer open areas. If, on the other hand, your property is wooded, you will have better luck attracting species such as nuthatches. If you live in the woods and have your heart set on bluebirds, you might ask a neighbor with more suitable bluebird habitat if you erect and monitor a nest box on his property. Most property owners are quite amenable to this idea.

People with many nest boxes, called "trail operators," often place boxes in pairs on poles 15 to 25 feet apart; others put two boxes, back to back, on a single pole. For trail operators with bluebird and Tree Swallow habitat, pairing boxes has the advantage of allowing more birds of both species to coexist peacefully.

If a pole or pipe is placed near a road, place the box so the entrance faces away from traffic. This will prevent the fledglings from flying into the road when leaving the nest.

A word of caution: Golf courses, cultivated fields, gardens, and yards are great habitats for nest boxes, but avoid areas where pesticides and herbicides are used. These agents are not only harmful to birds, they decrease and sometimes eliminate insect populations—the primary food source for most nest-box-nesting species.

How to Put up Your Nest Box

Whichever method you choose to erect your boxes, be sure your box is secure enough to withstand high winds and severe weather.

The best way to erect small nest boxes is on free-standing metal poles or PVC pipes. These pipes or poles offer several advantages:

- ▶ Nest boxes can be mounted higher than when mounted on a fence post.
- ▶ Many predators find poles difficult to climb.
- ▶ Poles can also be easily equipped with a predator guard.

In a pinch, small nest boxes can be mounted on fence posts or trees.

If you wish to attach a box to a living tree, do not use nails. Rather, hang the box with coat-hanger wire wrapped around the box and then around the tree trunk. Boxes placed too low on pasture fence posts or poles may be knocked off by cattle rubbing against the box.

Nest boxes for bluebirds should be placed in open habitat. Larger nest boxes for species such as Wood Ducks or American Kestrels should be hung on sturdy posts or tall trees. Utility poles are a good option for American Kestrels. These poles are tall, allowing you to mount the box at the height kestrels prefer, and the utility lines are good perching places for the birds. Before hanging a nest box on a utility pole, get permission from the utility company or owner.

When to place Nest Boxes

Make sure your nest boxes are in place well before the breeding season begins. Don't be discouraged if the birds do not begin nesting in your box immediately; sometimes it takes time for the birds to find it.

Nest Box Dimensions

from the U.S. Fish and Wildlife Service

catch this fever, you, too, may graduate from having one or two boxes to perhaps having dozens of boxes covering several square miles! Not only will you survive this fever, you will also be personally responsible for contributing to the survival of cavity-nesting birds in North America.

Characteristics of a Good Nest Box

It is important to be selective when purchasing a nest box. Look for one that is durable, easy to check, and clean. To make your selection easier, we have listed several characteristics common to high-quality nest boxes. Use these guidelines to choose a nest box that works best for you:

- ▶ **Unfinished wood**—Nest boxes should not be stained or painted on the inside. Try to purchase a box that has not been treated or painted at all, as the chemical fumes can be harmful to nesting birds. If you purchase a box that is painted on the outside, choose one that is painted with light, neutral tones. Light colors reflect the sun and decrease heat absorption, thus preventing the nestlings from becoming overheated.
- ▶ **Thick walls**—Nest boxes made with wood at least three-quarters of an inch thick are durable and provide the inhabitants with protection from the elements. One-inch-thick lumber is even better.
- ▶ **Extended, sloping roof**—The roof of the nest box should extend two to five inches beyond the front of the box. This keeps out rain, wind, and sun, and deters predators as well.
- ▶ **Rough or grooved interior**—Nest boxes should be made of rough-cut wood or should contain grooves on the inside, directly underneath the entrance hole. This feature helps the nestlings climb out of the box when they are ready to fledge.
- ▶ **Recessed floor**—To keep water from seeping into the box and getting the nest wet, the sides of the box should extend about a quarter of an inch beyond the floor.
- ▶ **Drainage holes**—The floor of the nest box should be equipped with small drainage holes—about three-eighths of an inch in diameter. This allows the water to drain out and keeps the nest from getting wet.
- ▶ **Ventilation holes**—Nest boxes can become very hot in the summer. Ventilation holes near the top of both sides of the box enable excess heat to escape. If the weather is unseasonably cold, temporarily plug these holes up—but remember to remove the plugs when the weather warms up again!
- ▶ **Easy access**—Nest boxes should be easy to check. We recommend boxes that can be opened from the side. Top-opening boxes often need to be placed at a lower height so that the person monitoring the box can see inside. Also, boxes that open from the top are more difficult to seal from the weather. Fasten doors securely enough to prevent the box from accidentally opening and to resist vandalism.
- ▶ **No outside perches**—House Sparrows are attracted to nest boxes with perches. Native cavity-nesting species do not need perches to enter a nest box.
- ▶ **Sturdy construction**—Avoid nest boxes that are glued or stapled together; they are neither durable nor easily repaired. We recommend nest boxes constructed with galvanized screws, because damaged panels can be easily unscrewed and replaced.

Nest-Box Placement

Once you have purchased or built your nest box, deciding where to put it and how to hang it are the next steps. Be sure to put the nest box up before the breeding season begins. Here are some tips to help you

Species	Box floor inches	Box height inches	Entrance height inches	Entrance diameter inches	Placement height feet
American Robin*	7x8	8	---	---	6-15
Eastern & Western Bluebird	5x5	8-12	6-10	1- 1/2	4-6
Mountain Bluebird	5x5	8-12	6-10	1-1/2	4-6
Chickadees	4x4	8-10	6-8	1-1/8	4-15
Titmice	4x4	10-12	6-10	1-1/4	5-15
Ash-throated Flycatcher	6x6	8-12	6-10	1-1/2	5-15
Great Crested Flycatcher	6x6	8-12	6-10	1-3/4	5-15
Phoebes*	6x6	6	---	---	8-12
Brown-headed pygmy and Red-breasted nuthatch	4x4	8-10	6-8	1-1/4	5-15
Prothonotary Warbler	5x5	6	4-5	1-1/8	4-8
Barn Swallow*	6x6	6	---	---	8-12
Purple Martin	6x6	6	1-2	2-1/4	6-20
Tree and Violet-Green Swallows	5x5	6-8	4-6	1-1/2	5-15
Downy Woodpecker	4x4	8-10	6-8	1-1/4	5-15
Hairy Woodpecker	6x6	12-15	9-12	1-1/2	8-20
Lewis' Woodpecker	7x7	16-18	14-16	2-1/2	12-20
Northern Flicker	7x7	16-18	14-16	2-1/2	6-20
Pileated Woodpecker	8x8	16-24	12-20	3x4	15-25
Red-headed Woodpecker	6x6	12-15	9-12	2	10-20

Recommended Box Mounting Method



$\frac{1}{4}$ " \times 2 $\frac{1}{2}$ " Carriage Bolt and Nut

1" Electric Conduit Mounting Bracket and 2 #8 \times $\frac{1}{2}$ " Screws

**Mounting Pole
1" EMT Metal Electric Conduit
7 $\frac{1}{2}$ ' Long with the Bottom 1 $\frac{1}{2}$ ' Buried in Ground**

Nest Box Predator Guards

Cat/Raccoon Guard

6 1/2"

BEND PRONGS
OUTWARD

5 1/2"

Fold

3 1/2"

Fold

5 1/2"

Fold

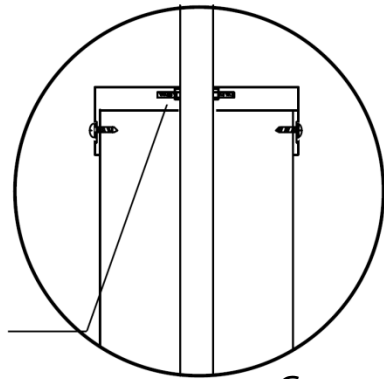
3 1/2"

- Bend guard into shape
- Lace edges together along corner using light-weight tie wire.
- Cut off the edge to make prongs, then bend prongs outward to prevent snags for our birds.

Attach to box with 4 #8 x 1/2" Sheet Metal Screws, and 4 #10 washers.

MAKE SURE THE ENTRY HOLE IS NOT OBSTRUCTED

- Drill 1/4" hole through pole 4 inches below nest box.
- Put 3" long 1/4" bolt (with head cut off) through hole, and secure with a nut on each side.
- Suspend Snake Guard on this bolt. (It should wobble- keeps the critters off.)



Ground
Level

Snake Guard

1 1/2'

Raccoon Guard:

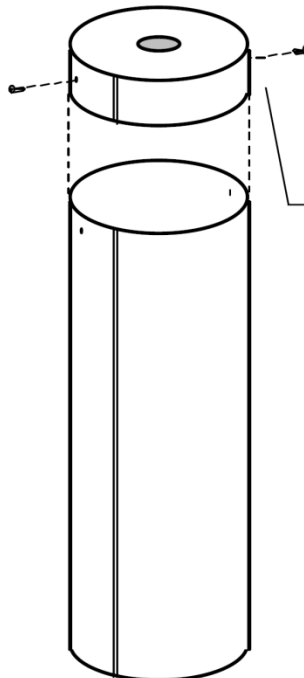
- 1/2" Vinyl Coated Hardware Cloth (6 1/2" x 18")
- Tie Wire (10")
- 4 - #8 x 1/2" Sheet Metal Screws
- 4 - #10 Flat Washers

Snake Guard:

- 8" x 24" Round Duct
- 8" Round Duct Cap
- 2 - #8 x 1/2" Sheet Metal Screws

Mounting Pole:

- 1" EMT Metal Electric Conduit (7 1/2' Long) Bury in ground 1 1/2'.



- Cut 1 1/4" hole in center of Round Duct Cap. (The hole must only be slightly larger than mounting pole. A small snake can slip through a 1/2" gap.)
- Slide Duct Cap over top of the Round Duct section.
- Drill a pilot hole through each side of the Duct Cap and Round Duct, and secure the Cap to the Duct with two #8 x 1/2" Sheet Metal Screws.

Mount the nest box so entry hole is about 5' from the ground.

