



Artificial Nesting Cavities



The lack of naturally occurring nesting cavities often limits the abundance of some wildlife species. The Eastern Bluebird is a good example of one that has experienced population declines in direct response to losses of suitable nesting cavities. Although other habitat needs of a particular wildlife species may be readily available, without suitable nesting habitat, the species simply cannot sustain their abundance. Artificial nesting structures are frequently used to augment the supply of existing nesting cavities and/or provide nesting cavities in areas where they currently don't exist. Artificial nesting structures have also been used to attract certain types of cavity-nesting wildlife closer to dwellings for viewing purposes.

Artificial nesting structures can replace the lack of naturally occurring nest sites, however, if the other habitat requirements of the species are not met within the immediate vicinity, the nesting structure will, more than likely, not be used. Landowners have frequently erected Wood Duck nesting boxes on backyard ponds and small lakes, only to be disappointed to find the boxes never used. Unless the area provides sufficient brood-rearing, feeding, and loafing cover in the right amounts, it is unlikely the nesting structure will be used. Similarly, a landowner erecting a bluebird box in a location that doesn't have sufficient grassland habitat, capable of supporting a good supply of insects, will also be disappointed. Therefore, it is important to make sure the other habitat requirements for the species are readily available in the immediate vicinity before erecting nesting structures.

This fact sheet is not intended as an all encompassing "how to" guide for each and every type of structure. There are literally hundreds of various designs for nest structures. Some designs are better than others. Listed below are general guidelines to follow when building and placing nesting structures, followed by specific tips for bluebird boxes.

Nest Box Specifications and Habitat Preferences for Selected Cavity Nesters in Indiana

Species	Floor of Cavity	Depth of Cavity	Height of Entrance Hole Above Floor	Diameter of Entrance Hole	Height of Nest Box Placement Above Ground	Habitat Preference for Nest Box Placement
Carolina Wren	4" X 4"	6-8"	4-6"	1"	6-10'	wooded or shrubby edges
House Wren	4" X 4"	6-8"	4-6"	1"	5-10'	under eave of building or hanging from tree
Prothonotary Warbler	4" X 4"	6-8"	4-6"	1 1/4"	3-5'	flooded timber, wooded shoreline or stream bank
Black-capped Chickadee* Carolina Chickadee	4" X 4"	8-10"	6-8"	1 1/8"	6-15'	edges of woodlots
Tufted Titmouse	4" X 4"	8-10"	6-8"	1 1/4"	6-15'	field edges, woodlots
White-breasted Nuthatch	4" X 4"	8-10"	6-8"	1 1/4"	12-20'	woodlots, forests
Eastern Bluebird Tree Swallow	5" X 5"	8"	6"	1 1/2"	4-10'	large, grassy, open areas
Great Crested Flycatcher	6" X 6"	8-10"	6-8"	2"	8-20'	woodlots, forests
American Robin	6" X 8"	8"	Front side open		6-15'	open areas with scattered trees
Eastern Phoebe	6" X 8"	8"	Front side open		6-15'	under eaves of house, barn or bridge
Northern Flicker ¹	7" X 7"	16-18"	14-16"	2 1/2"	6-20'	woodlots, urban areas
American Kestrel ²	8" X 8"	12-15"	9-12"	3"	10-30'	large grassy areas
Screech Owl ³	8" X 8"	12-15"	9-12"	3"	10-30'	woodland edge adjacent to fields
Saw-whet Owl ³	8" X 8"	12-15"	9-12"	3"	12-20'	in mature pine stands or adjacent woodlands
Barred Owl ³	12" X 12"	23"	15"	7" square	12-30'	woodlots, forests
Barn Owl	36" X 12"	16"	7"	6" square	15-30'	in seldom-used barns with nearby grassy fields

* Black-capped Chickadee nests in the northern 1/4 of Indiana. Carolina Chickadee nests in the southern 3/4 of Indiana.

¹ Use 1/2" thick boards to construct box, remove top, fill completely with tightly-packed saw dust, replace top securely.

² Place 2-3" of sawdust in bottom of box.

³ Place 2-3" of wood chips or wood shavings in bottom of box.

General Guidelines for Building and Placing Nesting Structures

1. Different species require different house sizes. Do not build a generic nesting structure. Build it for a specific species and place it in the proper habitat.
2. Wood is the best material for houses. Wood is a natural insulator, relatively easy to work with and readily available. Rough-sawn lumber is a good choice. Do not use treated lumber. Poisonous vapors can be emitted when some of these preservatives come in contact with water. If you want to paint or stain your house, do so only on the outside. Do not use milk cartons, tin cans or metal for nest structures. These materials do not provide enough insulation and heat up quickly.
3. When assembling your structure, it is usually best to use wood screws instead of nails. Screws will hold the structure together better than nails. Also, screws are much easier to remove if it becomes necessary to replace a roof or floor. Screw holes should be pre-drilled to prevent the wood from splintering.
4. The roof should extend about 2" beyond the entrance side of the structure. This will help prevent rain, wind and even some predators from getting in through the entrance hole.
5. Most nest structures require drain holes in the floor. Four $\frac{3}{8}$ " diameter holes will work.
6. The sides of your nest structure should extend about $\frac{1}{4}$ " below the floor. This will prevent rain from seeping in the cracks and will help keep the floor from rotting out.
7. A $\frac{5}{8}$ " diameter hole should be drilled near the top of each side of the nesting box to provide ventilation.
8. Make sure your nest structure has a hinged side or roof that can be fastened securely shut. This will allow easy access into the structure for cleaning. Rustproof hinges work best.
9. Do not put perches on birdhouses. House Sparrows and European Starlings, both very aggressive species, prefer houses with perches.
10. For the most part, all nest structures should be firmly attached to a post, tree or building. Hanging or suspended structures are generally not recommended. Exceptions include structures for House Wrens, House Finches, and gourd-type houses for Purple Martins. If the structure is being attached to the side of a tree, use lag screws fitted with washers and loosen them periodically as the tree grows.
11. To reduce potential nest predation by snakes, cats, raccoons and other ground-dwelling predators, attach a predator guard immediately below the nesting structure. A 3 foot-high sheet of aluminum or other sheet metal securely wrapped and fastened around the post or tree, will deter most predators.
12. Most cavity nesting wildlife will bring in their own nesting materials, so unless noted, do not place material inside the box. Only use sawdust in nesting structures intended for the Northern Flicker and American Kestrel. Sawdust tends to absorb and retain moisture and packs tightly when wet, which can prevent water from draining through the drain holes.
13. Since most bird species are territorial, their nesting structures should be placed far apart so as to reduce potential squabbles. Territorial fighting consumes valuable energy and reduces the amount of time available for nesting and brood rearing. This does not apply to Purple Martins and other swallows that tend to nest in colonies.
14. Nest structures must be cleaned and repaired at least once each year prior to the next nesting season. Most nest structures should also be cleaned shortly after each brood has fledged to allow for additional nesting attempts. Some species may produce as many as four broods during the same nesting season.
15. After the nesting season is over, it is a good idea to remove all debris found in the box. This allows the box to be used through the remainder of the year as a temporary shelter during periods of harsh weather or sudden temperature drops.
16. If a nesting structure is not used, try moving it to a different location the following year.

Tips for Eastern Bluebird Boxes

1. Place nesting boxes near large grassy areas, such as pastures, meadows, hay fields, cemeteries, golf courses, roadsides, or large lawns.
2. Place nesting boxes as far away as possible from houses, barns or other buildings. House Sparrows and Starlings tend to be attracted to buildings and will aggressively compete with bluebirds for any suitable nesting site in the immediate vicinity.
3. To prevent Starlings from reaching into active bluebird boxes, make the entrance hole twice as thick by aligning and securing an additional thickness of wood about the opening.
4. Bluebirds defend nesting territories that are approximately 150 feet in diameter. To reduce territorial disputes, bluebird boxes should be placed at least 300 feet apart.
5. To help alleviate competition with Tree Swallows, set a pair of boxes 15 - 20 yards apart then go another 100 yards and set another pair of boxes.
6. Nesting boxes should be erected, cleaned out, and repaired prior to March 1st.
7. Houses should be checked periodically (up to weekly) through August, or through September in extreme southern Indiana, to detect and destroy House sparrow nests.
8. Although bluebirds will readily build new nests on top of old nests in successive nesting attempts, it is preferable to remove the old nesting materials shortly after each brood leaves the box. This practice will result in better ventilation, less cramping, and help eliminate parasites that might have previously become established.
9. If House Sparrows or Starlings begin using the nest box, remove all of their nesting materials and eggs immediately. Repeat as often as necessary until they no longer use the box. Care must be taken, however, to correctly identify the problem species. All wild birds (except pigeons, English Sparrows and Starlings), and their eggs are protected by federal and state laws. You may not trap, kill, or possess protected species and their eggs without federal and state permits. If the box has a hinged roof, leave the lid open. This will deter sparrows but not bluebirds. Once bluebirds start nesting, secure the lid shut. Another alternative is to move the box to a new location, less attractive to these species.
10. Other birds that may use this structure include the Tree Swallow, Black-capped Chickadee, Carolina Chickadee, House Wren and Carolina Wren. Tree Swallows are more apt to use bluebird boxes that have been placed near permanent bodies of water. The other species are more prone to use bluebird boxes that have been placed near woodland edges, thick brush, or brush piles.

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Prepared by the Indiana Department of Natural Resources, Division of Fish and Wildlife. For up-to-date information concerning the Indiana Division of Fish and Wildlife, or for information on the location of your District Wildlife Biologist, visit our website at www.state.in.us/dnr/fishwild/index2.htm

November 2001