Nest Boxes for Cavity-Nesting Birds in Oklahoma

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What do eastern bluebirds, tufted titmice, Carolina chickadees and Bewick's wrens have in common? Each is a widely distributed cavity-nesting bird in Oklahoma.

The populations of these birds are limited by the number of natural nest cavities available. Natural cavities (holes and hollows) are usually created by woodpeckers or fungal decay. The increasing use of dead trees for firewood destroys cavity-bearing or hollow trees that would otherwise provide nest sites for these birds or homes for other wildlife. Land owners can help reduce this shortage of nest sites by providing one or two nest boxes on their property. Nest boxes provide homes for birds and also provide an excellent opportunity to observe nesting birds.

Nest boxes are easy and inexpensive to build and maintain. The following instructions describe how to build simple boxes for cavity-nesting birds and where to place the boxes for best results.

Building the Box

The basic bird box is illustrated in Figure 1. It is designed for bluebirds, but it has proven equally effective for chickadees, titmice, and wrens.

Boxes should be built from 3/4 inch exterior grade plywood. Cypress or pine can be used, but these are more expensive and pine tends to warp. Using 3/4-inch stock insulates the nest from summer heat and spring chills. By using galvanized nails (1 1/2-1 3/4") and glue to attach permanent joints, the life of the box will be prolonged.

Paints and stains improve the weathering qualities of bird boxes. Since the roof receives the greatest exposure and weathers faster than the other sides, painting it is especially recommended. Pale earth tones and natural stains are best. They absorb less heat and are less conspicuous to vandals. Do not paint the interior of the box. Use three coats of stain, exterior latex paints, or exterior oil-based paints (lead free) for best results.

The basic bird box has a flat roof. Rain is shed along the groove cut on the underside of the roof. This prevents water from draining back into the house. The roof should extend at least two inches beyond the hole to protect the nest from driving rains. If rain does enter the box, it drains through the holes in the floor. Pivot nails permit the front to swing open for easy cleaning.

The size and position of the entrance hole are critical. Hole diameter varies according to the species desired (see Table 1). Positioning the hole at least six inches above the floor will help prevent starlings, cats and raccoons from reaching in and breaking eggs and killing chicks. The optional predator guard adds to the distance between the nest and a predator.

Finally, to help young birds leave the box, roughen the inside of the box front with a chisel or saw. This provides an escape ladder for the fledglings and simulates the interior of a natural cavity. The outside of the front of the box should also be roughened to provide a foothold for parent birds returning to the nest. In boxes for larger birds (Table 1), nail a small block of wood (2x2x2 inches) halfway down on the inside of the front board. This will serve as a ladder for fledglings and as a perch for adults. Perches should never be attached to the outside of the box below the hole. Exterior perches only encourage use by house sparrows.

Box Placement

Bird boxes should be placed in protected locations in appropriate habitat (see "Habitat Requirements"). Boxes can be placed at eye level for most species (see Table 1). One to three boxes per acre may attract several species of cavity-nesting birds. Territorial squabbles among the birds can be minimized by spacing the boxes at 75-100 yard intervals.

Boxes should be in place by early February so they are available when birds are ready to nest. Place boxes so they will be shaded during hot summer afternoons. East of a larger cedar tree is ideal. Orient the opening to the east to avoid prevailing westerly winds and driving rains.

Box Maintenance

Once in place, nest boxes require minimal care. Old nests and trash should be removed each time young birds fledge from a box. This increases the chances that a single box will be used more than once per nesting season. It also helps eliminate parasites that accumulate in the nest during the brood period. A final winter cleaning will ready boxes for the following spring.

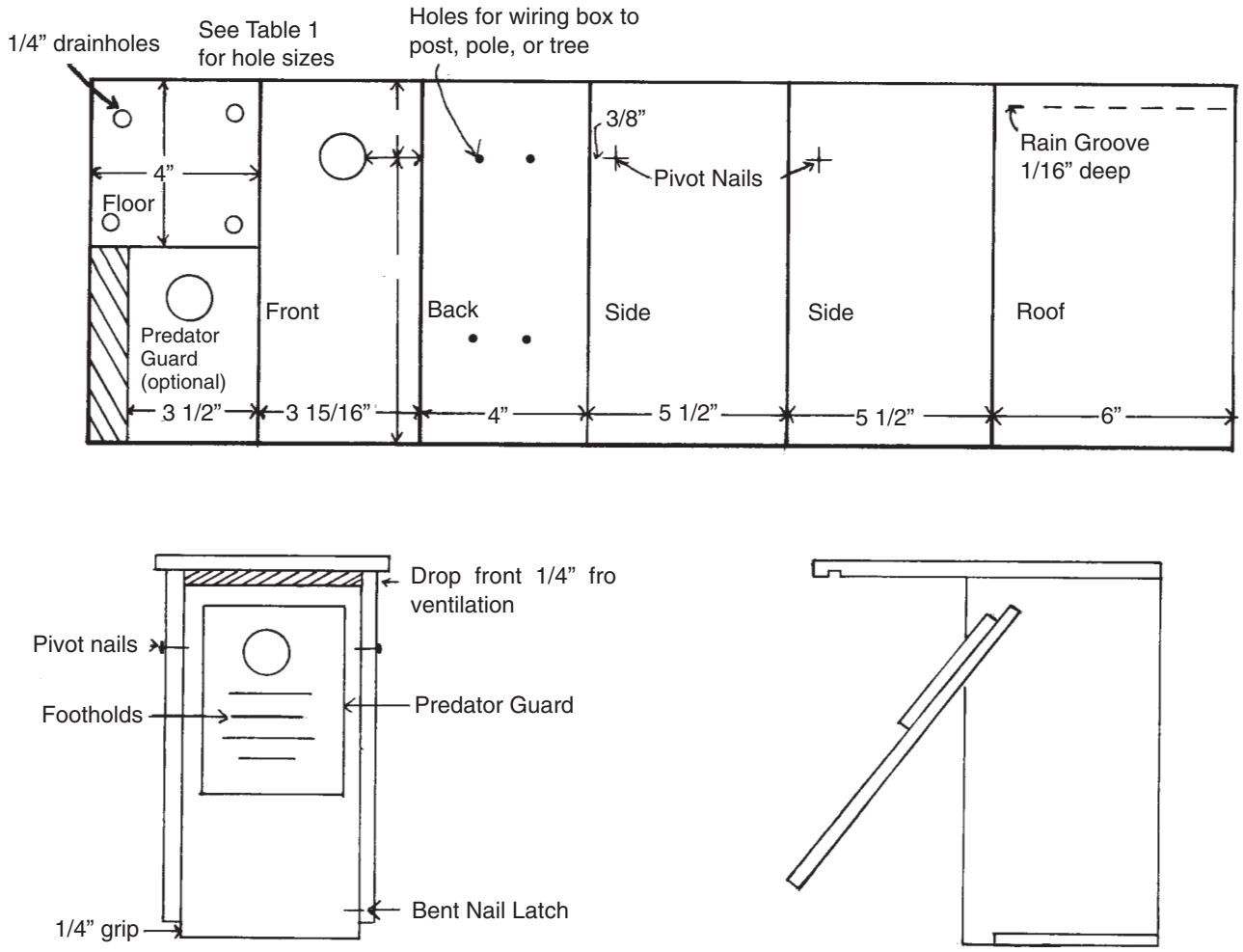

Figure 1. Plans for a basic bird box. It takes only 30 inches of 3/4" x 10" exterior plywood to make one box. Attach to tree or pole with twisted coat hanger wire. Use information in Table 1 to modify floor plan to accommodate larger species.

Table 1. Specification for bird boxes for the cavity-nesting birds of Oklahoma.

Species	Floor (in.)	Diameter of Entrance (in.)	Entrance above Floor (in.)	Height above Ground (ft.)
Eastern Bluebird	4x4	1 1/2	6-10	3-6
Carolina Chickadee	4x4	1 1/8	7	4-15
Tufted Titmouse	4x4	1 1/4	7	4-15
White-breasted Nuthatch	4x4	1 3/8	7	5-15
House Wren	4x4	1 1/4	4-6	4-10
Bewick's Wren	4x4	1 1/4	4-6	4-10
Carolina Wren	4x4	1 1/2	4-6	4-10
Prothonotary Warbler	4x4	1 3/8	4-6	3-12[a]
Great-crested Flycatcher	6x6 *	1 3/4	6-8	6-20
Purple Martin	6x6 *	2	1-2	6-25
Screech Owl	8x8 *	3	9-12	10-30
American Kestrel	8x8 *	3	9-12	10-30
Wood Duck	12x12 *	4	17	10-30[a]

*Use the plans for the basic bird box, adjusting dimensions where necessary.
[a] 3-6 ft. above water in a wooded swamp is best.

Habitat Requirements

Bluebirds are often the first birds people try to attract. These beautiful song birds are easily attracted to nest boxes. Bluebird habitat includes pastures, old fields, abandoned orchards and cemeteries - open areas with scattered trees that are used as hunting perches. From these perches bluebirds capture a variety of ground dwelling and flying insects. Bluebird boxes should be fastened to fence posts or large tree trunks at a height of 3-6 feet above the ground. Hole diameter is critical for bluebirds. It must be exactly 1-1/2 inches. A larger opening will admit starlings, and a smaller opening will deter bluebirds.

Chickadees, titmice and nuthatches are woodland birds that frequent forest/field edges. Because of their preference for large trees and their tolerance of scattered openings, these species are common backyard birds even in larger towns and cities. A year-round supply of sunflower seeds makes yards more attractive as nest sites for these species. Even under ideal conditions, however, nuthatches prefer natural cavities to bird boxes.

Wrens are not at all choosy about their nesting cavities. Any opening that permits entry will do. This makes wrens easy to attract. House wrens and Bewick's wrens nest in open woodlands, brushy areas, farmland and heavily vegetated backyards. The Carolina wren is more common in brushy forests, along stream bottoms and on abandoned farmsteads.

Prothonotary warblers are beautiful inhabitants of bottomland forests and wooded swamps. Nests are often placed in old woodpecker holes over water. Boxes placed on snags or posts 3-6 feet above open water are most likely to be used (use a predator guard). The prothonotary warbler is the only cavity-nesting warbler found in the eastern United States.

Great-crested flycatchers are common Oklahoma cavity-nesters found in open forests especially along edges. This bird prefers to nest in old woodpecker holes, but when natural cavities are in short supply, nest boxes are used.

Purple martins are another bird house favorite. These birds nest in groups and often occupy specially built martin apartment houses (see Figure 2). Martins are widespread and occur in areas near water where nest sites are available. Martins often occupy houses placed near farm ponds.

Screech owls are small nocturnal predators that readily use large nest boxes. Woodlands, orchards, farmyards and cemeteries are favored habitats. Boxes should be attached to large trees at least 10 feet above the ground. Because screech owls do not build a nest, an inch of wood shavings should be placed in these boxes to cushion the eggs.

American kestrels (Sparrow Hawks) are small falcons found throughout the open country of Oklahoma. Scattered large cavity trees are required for nesting, but kestrels can be attracted to nest boxes placed in large trees or to holes in the sides of old buildings. Because kestrels and screech owls eat large quantities of small rodents and insects, they are particularly beneficial to have around farms and ranches.

Wood ducks are found in floodplain forests along slow moving rivers, streams, and ponds in central and eastern Oklahoma. Next boxes should be placed high in large trees no more than one-fourth mile from water or on a post 3-4 feet above standing water (use a predator guard).

Other occupants - squirrels, mice, tree frogs, spiders and paper wasps occasionally use nest boxes intended for birds. Even woodpeckers may sometimes use a nest box, but this is unusual because excavating the cavity is part of woodpeckers' breeding behavior.

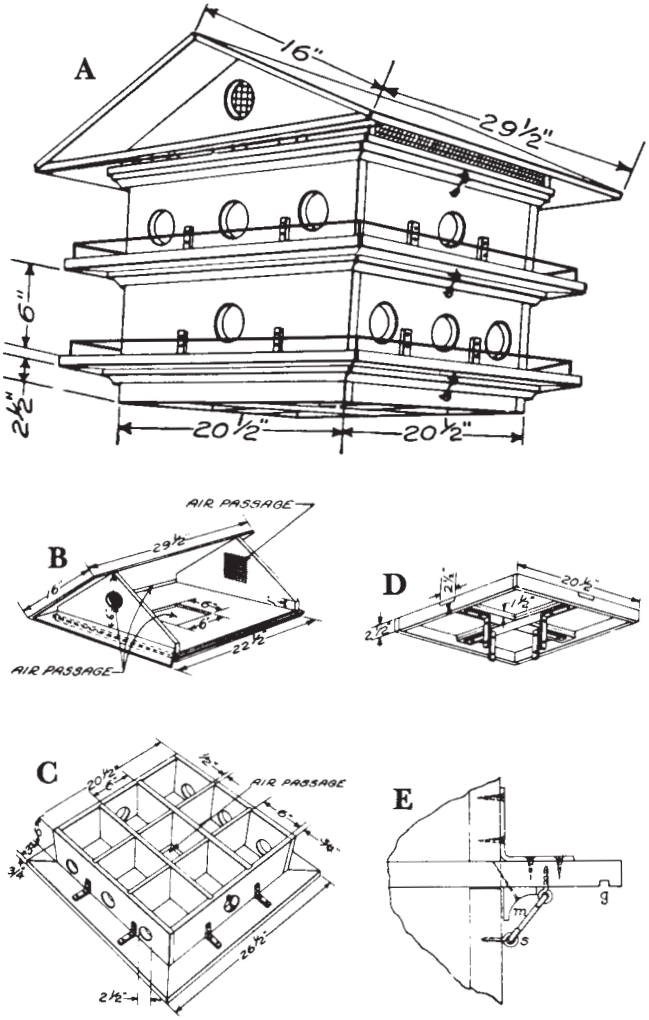

Figure 2. A, The completed martin house; B, Details of attic designed for ventilation; C, Floor plan for each level of the house. Remove floor from center chamber. D, Foundation - note double thickness of central cross (3/4" stock); E, Detail of porch. Note rain groove (g).

Words of Caution

House sparrows and starlings, introduced to North America in the late 1800s, pose the greatest threat to bird box inhabitants. These exotic pests are persistent hole- nesters, often driving our native cavity-nesters from their nests. In taking over a cavity, they break the eggs or kill the chicks of the other species. Bluebirds and martins are frequent victims of these aggressive hole-nesters. Because of their behavior, these pests must be controlled. Remove house sparrow and starling nests whenever found, and destroy the eggs and chicks. Neither is protected by law. Persistent harrassment is necessary to discourage these exotic pests.

Snakes, raccons, squirrels, house cats and opossums will destroy nests, but some natural predation is to be expected. If serious losses occur, install a predator guard (see Figure 3). Snakes and raccoons may be deterred by coating nest box poles with a heavy layer of axle grease.

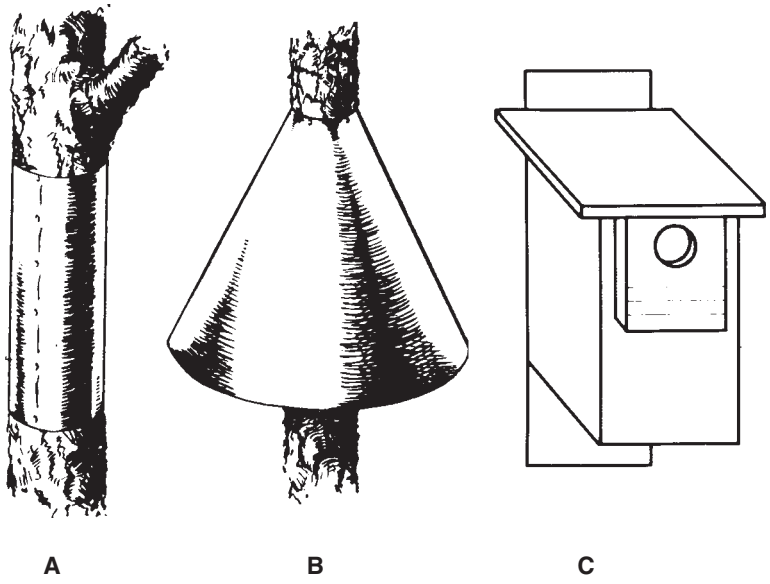

Figure 3. Predator guards: A and B, sheet metal; C, raccoon guard (extra piece of wood around entrance hole makes it difficult for paws or beaks to reach nest).

Attach nest boxes to dead trees, posts, etc. where possible. To prevent damage to valuable trees, attach boxes, with wire, to a few nails driven into the tree. If wire is used to attach predator guards, check often and adjust to prevent damage to the tree.

Once nest boxes are in use curiosity will lead you to check the progress of the nest. Keeping accurate records of nest box use is important. But don't over do it. Check boxes only two or three times per week, and never disturb the nest after the chicks are 8-9 days old. This may cause the young to leave the nest prematurely, resulting in almost certain death.

Further Information

For more information about the habits of cavity-nesting birds, consult: Cavity-nesting Birds of North America. 1977. U.S. Dept. Agric. Handbook 511. Order from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Stock No. 001-000-03726-9. $5.50.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Robert E. Whitson, Director of Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President, Dean, and Director of the Division of Agricultural Sciences and Natural Resources and has been prepared and distributed at a cost of 20 cents per copy. 0704