

## Backyard Wildlife *Birdhouses and Shelves*

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Providing adequate shelter helps attract birds to backyards. Guidelines for building birdhouses and shelves, from choosing materials to monitoring use, are provided here.

### Introduction

Providing birdhouses and shelves can be a fun and rewarding part of a wildlife program. It doesn't matter where you live — in an apartment, townhouse, or single family dwelling in a town, suburb, or the country — you can attract birds by providing the proper nesting structure. Birds such as Black-capped Chickadees, Purple Martins, or bluebirds are cavity nesters and can benefit from birdhouses. Other birds like the American Robin and the Barn Swallow, will use open nesting structures such as shelves. A well-built house or shelf that is durable, rainproof, cool, and easy to clean can add to the attractiveness of your property.

### Materials

Birdhouses and shelves can be constructed from a wide variety of materials including wood, PVC pipe, or natural items such as gourds. Gourds are easy to grow, are lightweight, and make an attractive addition to a backyard. Avoid using metal for birdhouse construction because it tends to overheat. The exception is the Purple Martin house, which is usually made of lightweight aluminum to make raising and lowering the apartment complex easier. Any good, solid, untreated wood is generally the best construction material. Cedar, pine, or poplar are particularly easy to work with and weather well. Cedar is durable and its naturally occurring aroma may discourage parasites inside the house. One-inch boards, which actually measure about 3/4 inch, provide sufficient insulation and are widely available. Reusing scrap wood from other building projects can save money and cut down on waste. Galvanized or aluminum nails or screws are preferable because they don't rust, and nails with roughened shanks (designed to hold tightly) are better than smooth nails. Galvanized siding nails, 12 1/2 or 14 gauge and 1 1/2 to 1 3/4 inches long, work well and are readily available. Screws are probably best of all. To prevent injuries to occupants from sharp points, make sure there are no nail or screw points protruding into the box cavity (*Figures 1-6*).

### Paint

Birdhouses and shelves, especially those made of durable, long-lasting cedar, don't need to be painted. Exterior paint, however, will prolong the life of a birdhouse or shelf made of less durable pine or poplar. Exterior latex is generally recommended. If colors are used, natural tones such as light brown, gray, or dull green are usually best. Because they are placed in exposed locations, Purple Martin houses are an exception: they should be painted white to reflect heat. Do not paint the interior of the nest box or the entrance hole.

### Drainage and Ventilation

Drilling a few small holes in the floor of the birdhouse allows proper drainage. Leaving 1/2-inch gaps under the eaves or drilling several 1/4- to 5/16-inch holes along the top of the sides provides adequate ventilation.

### Entrances

Birds can be particular about the entrance hole size, so measurements should be fairly exact. Also, properly sized entrance holes may keep out unwanted species. Avoid perches at the entrance hole because birds don't need them and perches make handy grips for would-be nest predators. In Nebraska, facing the entrance hole in a southeasterly to northeasterly direction may help prevent chilling from cold spring rains. Studies indicate that bluebird nest boxes may have the greatest nesting success when the entrance hole is faced northeasterly, apparently because of warming by early morning sun.

Purple Martin houses may benefit from new starling-proof entrance holes. These are crescent shaped and placed lower on the front wall. Martins can get in but European Starlings can't. For details, check the Purple Martin Conservation Association Web site listed at the end.

### Exit Stairway

Roughen the inside portion of the hole just below the entrance so young birds can climb out of the house easily. This can be done by sawing grooves 1/8-inch deep or by punching dents in the wood with a screwdriver.

### Access

Houses need an access door that allows easy inspection with minimum disturbance to occupants. One of the sides can be made to swivel out for side access or hinges can be placed on the top.

## Sanitation

Clean nest boxes and shelves are more likely to be occupied. Proper sanitation improves the chances of a healthy and successful brood. Nest boxes and shelves should be cleaned prior to each nesting season and immediately after any broods have left the box, even if the adult birds show signs of re-nesting. Old nesting material, eggs, and dead nestlings should be removed from the box or shelf to keep parasites down. A nearby birdbath with clean water and a place for sand or dust baths also will help discourage parasites.

## Maintenance and Monitoring

Wood Duck, American Kestrel, and bluebird houses should be ready for occupants by March, and most other boxes and shelves should be ready by April. Birdhouses and

shelves should be accessible so you can check and clean them when needed. Part of being a responsible landlord is taking care of tenants. Monitor birdhouses and shelves once a week to prevent nuisance or nonnative species (House Sparrows or European Starlings) from taking over. If you clean out nest boxes after each brood has fledged, the box may be used again throughout the summer. When planning access to boxes, consider that Purple Martin houses made of wood may be too heavy to mount on telescoping poles, a pole often used with aluminum martin houses or gourds. An alternative is to mount a wooden martin house on a fixed shortened pole and then inspect it using a ladder. In the fall, after you have cleaned out the boxes for the last time, you can leave the boxes up for shelter during the winter, prevent access to the box by plugging the entrance hole, or put them in storage. Squirrels may gnaw to enlarge the entrance holes of boxes

**Table I. Facts for Nebraska birdhouses.**

<i>Species</i>	<i>Floor of Cavity (inches)</i>	<i>Depth of Cavity (inches)</i>	<i>Entrance Above Floor (inches)</i>	<i>Diameter of Entrance (inches)</i>	<i>Height Above Ground (feet)</i>	<i>Notes</i>
House Wren	4x4	6 - 8	4 - 6	1 - 1 1/4 or 1 x 3-4	4 - 10	Easily attracted in urban areas, acreages, farmyards near woodland clearings, or edges of woods. Will use a free-hanging house, unlike most other species.
Black-capped Chickadee	4x4	9	7	1 1/8	4 - 15	Easily attracted to urban yards, acreages, farmyards, and woodlots with mature, hardwood trees. Add 1-inch of wood shavings to bottom of box. ★
Downy Woodpecker	4x4	9	7	1 1/4	5 - 15	Primary cavity nester and uncommon nest box user. Needs to excavate nest hole so line nest box with a 2-inch layer of wood shavings. ★ Place box near woodland clearings or edges of woods.
Red-headed Woodpecker	6x6	12	9	2	10 - 20	Same as Downy Woodpecker. ★
Northern Flicker	7x7	16 - 18	14 - 16	2 1/2	6 - 30	Primary cavity nester. Fill nest box with wood shavings. ★ Will nest in farmyards, orchards, woodlots, and urban areas with crop fields, grassy areas, and yards nearby for foraging.
White-breasted Nuthatch	4x4	9	7	1 3/8	10 - 20	Not a common nest box occupant. Requires a clearing near a mature forest.
Eastern Bluebird	5x5	8 - 12	6 - 10	1 1/2	4 - 10	Commonly uses nest boxes properly placed in or near an open rural area of grass, such as an old field, orchard, golf course, cemetery, or pasture.
Mountain Bluebird	5x5	8 - 12	6 - 10	1 5/8	4 - 10	Found in extreme western part of the state. Entrance hole diameter should be 1 5/8 inches. Habitat is similar to eastern bluebird.
Tree Swallow	6x6	8 - 12	6 - 10	1 1/2	4 - 10	Tree Swallows and bluebirds often nest in same area. To reduce competition, erect a pair of nest boxes 25 feet apart. Tree Swallows are more common near water areas like wetlands, creeks, and ponds.
Screech Owl	8x8	12 - 15	9 - 12	3	10 - 30	Chances of attracting are fair to good. Line box with 1-2 inches of wood shavings. ★ Place box near woodland clearings or edges of mature woods. Sometimes nest in suburban mature hardwood trees.
Barn Owl	10x18	15 - 18	0 - 4	6	12 - 18	Sensitive to disturbance in April and May. Chances of attracting are fair. Place boxes in silos or barns, or on trees. Important to have meadows, hayfields, or grasslands nearby for foraging habitat.
American Kestrel	8x8	12 - 15	9 - 12	3	10 - 30	The likelihood of attracting is good. Install boxes by Feb. 1. Place 2-3 inches of wood shavings in box. ★ Place box on a tree or post in open areas, not permanently shaded, with grasslands nearby.
Wood Duck	12x12	22	17	4	10 - 20 (6-water)	Chances are good for attracting if boxes are placed over water or in woodland habitat near lakes, rivers, or marshes. If box is mounted on a tree on land, entrance hole should face the water.
Purple Martin	6x6	6	1	2 1/8 - 2 1/4	10 - 20	Place houses or gourds in areas surrounded by pastures or lawns; at least 30 feet away from buildings and 40 feet from tall trees, and if possible, near lakes, ponds, or marshes.
Say's Phoebe	7x8		*	*	6 - 15	Common in western half of Nebraska. Generally found in dry native grasslands. Place nest platform in protected location like under eaves or overhang.
Eastern Phoebe	7x8		*	*	6 - 15	Easily attracted. Place platform under eaves or overhang, preferably near a flowing stream or creek.
Barn Swallow	7x8		*	*	6 - 15	Readily accepts nest shelf. Place away from doorway to avoid droppings by the door and aggressive adults.
American Robin	7x8		*	*	6 - 15	Excellent chance of attracting in urban areas, acreages, and farmyards. Place platform high on trunk of tree or under the overhang of a house, shed, or porch.

\*One or more sides of the house should be left open.

★ Cedar shavings are not recommended for lining or filling boxes because naturally-occurring chemicals may not be healthy for nestlings. Use other wood shavings instead.

left outside. Gourds will last longer if they are stored inside during the winter.

### When and How to Check Boxes

Knowing when not to disturb nesting birds is important. Avoid disturbing nest boxes at night and during rainy or windy weather, because under these conditions, frightening the adult birds away could result in chilled eggs or nestlings. Also, avoid checking boxes during the first few days of incubation, in the morning when females are laying eggs, and when young are close to fledging. Adults may abandon nests and nearly fledged young could leave the nest prematurely. Observe the box for a moment. If you don't see or hear any birds, tap on the box. Take a quick peek inside. If everything is OK, close the box, and leave the area. If you see problems (parasites; predators; or unwanted occupants such as wasps, ants, or mice), remove them using appropriate caution, close the box, and leave the area. Keep a record of your birdhouse contents to better judge when the young may fledge.

### Tips

- Think about the birds most likely to visit your backyard and determine the need for an appropriate nest box or platform.
- Houses mounted on metal poles are less vulnerable to predators than those mounted to a wooden post or tree.
- In the spring, hang a wire cage filled with natural fibers, twigs, wool, string, or feathers for birds such as Black-capped Chickadees, American Robins, phoebes, Barn Swallows, Tree Swallows, and House Wrens to use as nesting material.
- Bird baths and fruit-bearing shrubs are attractive to many bird species.
- Secure houses and shelves tightly to the support post to withstand wind and climbing predators.
- Some cavity-nesting birds forage in trees and require trees as part of their habitat. Examples include Black-capped Chickadees, Downy Woodpeckers, White-breasted Nuthatches, and House Wrens. Birdhouses for these species are more attractive and successful when appropriate tree and shrub habitat is nearby. In contrast, Purple Martins forage on the wing and require open areas. Bluebirds perch in trees but forage for insects in open areas; their boxes should be located in the open away from woods.

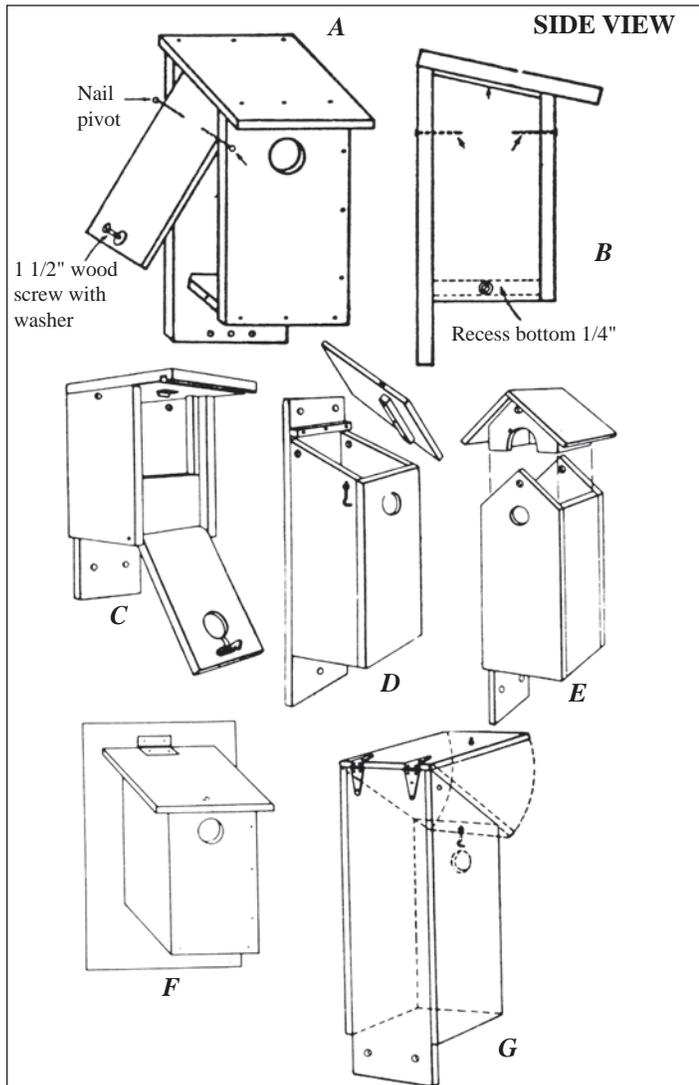


Figure 1. Accessible nest boxes: A—side opening box; B—side view of A; C—hinged-front held up by a catch; D and E—boxes with removable tops; F and G—hinged-top boxes. (Adapted from *Homes for Birds*, by Kalmbach, McAtee and Boone, 1979.)

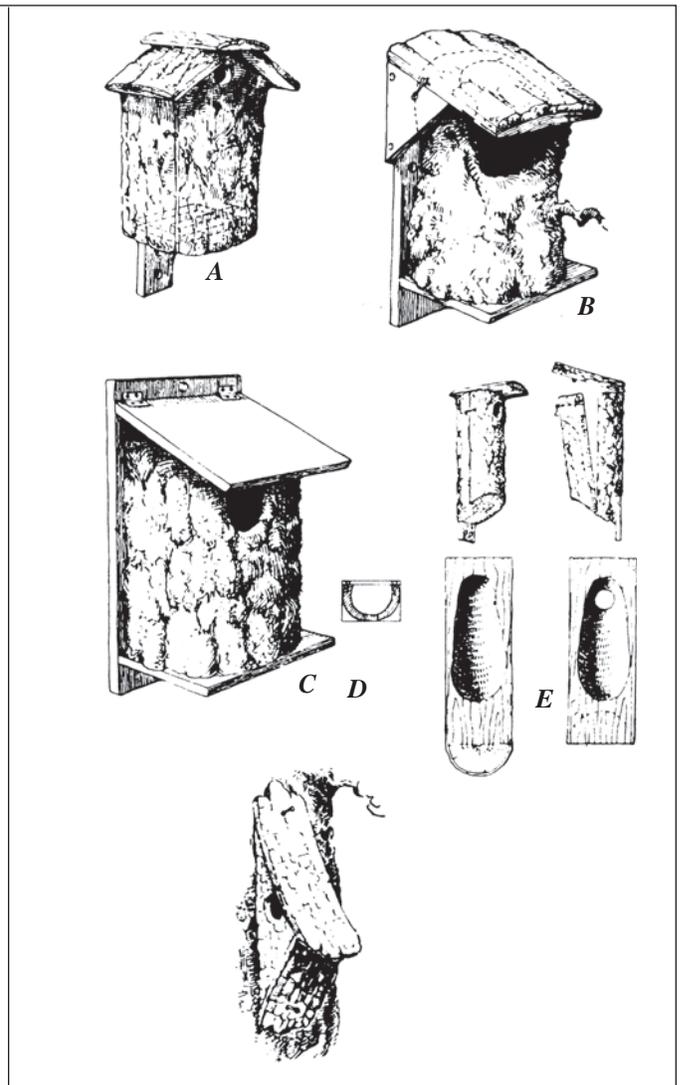


Figure 2. Rustic boxes: A has a removable front; B, a top held by two hooks; and C, a simple hinged top. In D there is a removable top that releases the front half of the cavity in the manner pictured. The principle embodied in B can be applied to the type shown in E, made of rough slabs. From *Homes for Birds*, by Kalmbach, McAtee and Boone, 1979.)

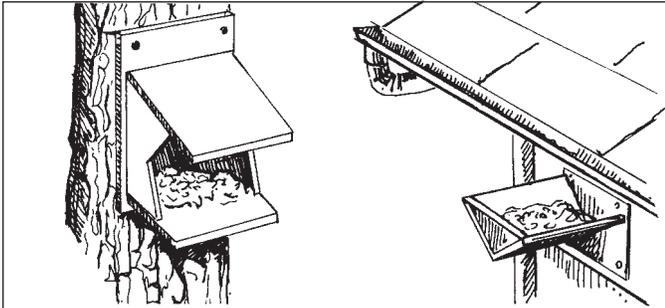


Figure 3. Nest bracket for robins and swallows.

Figure 4. Unroofed bracket for use under protective overhang.

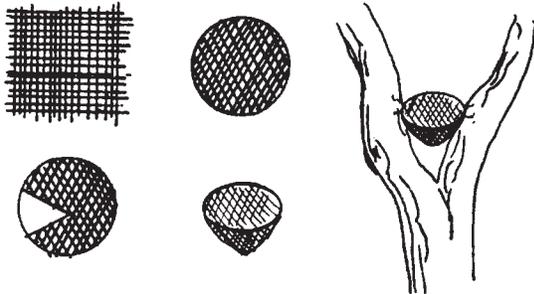


Figure 5. Mourning Dove nesting cone. Cut a 12-inch square of hardware cloth to form a circle, then cut out a pie-shape. Form a cone by overlapping the cut edges about 3 inches and wiring together. Place the cone in moderate shade, 6 to 16 feet aboveground, leaving clearance for easy escape. Attach it with roofing nails or staples and bend edges down slightly after it is in place.

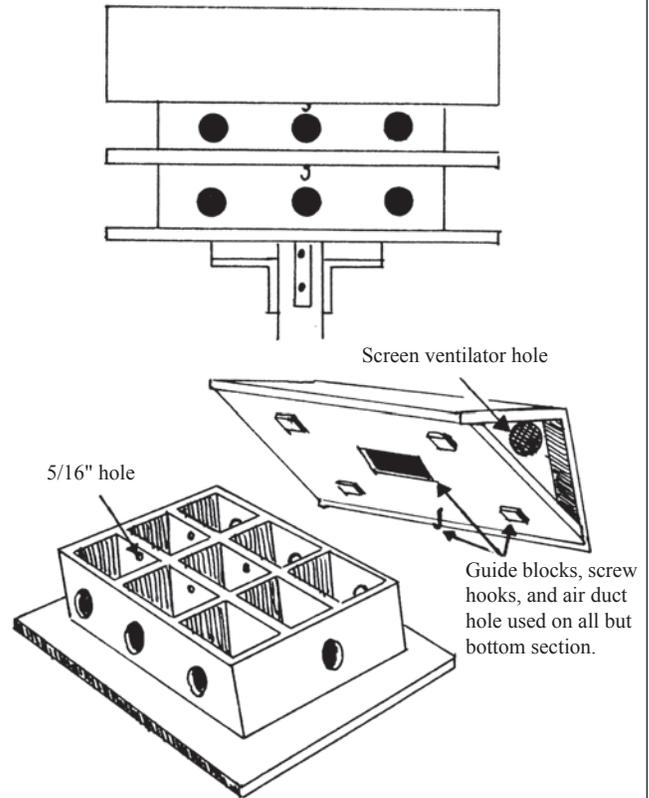


Figure 6. Add-a-story martin house. Additional sections can be added as the colony grows. Bottomless center compartments form an air duct to ventilate the "attic."

- Leave snags standing as natural birdhouses or, if desired for safety, cut them about 15 feet above the ground.

### For More Information

*Bluebirding Basics* and other educational materials available from Bluebirds Across Nebraska, P.O. Box 67157; Lincoln, NE 68506, or online at [www.bbne.org/](http://www.bbne.org/).

*Woodworking for Wildlife: Homes for Birds and Animals.* Henderson, Carrol L. 2009. Minnesota Department of Natural Resources, Nongame Wildlife Program. Available for purchase through the DNR Gift Shop (651) 222-0480, Minnesota's Bookstore (651) 297-3000, or online at [www.dnr.state.mn.us/publications/books/index.html](http://www.dnr.state.mn.us/publications/books/index.html).

### Web sites:

Cornell Laboratory of Ornithology, at Cornell University. Excellent research-based information on bird life history, identification, citizen science opportunities, and other bird-related topics. [www.birds.cornell.edu/](http://www.birds.cornell.edu/)

"For the Birds." U.S. Fish and Wildlife Service, Information on attracting backyard birds, including homes for birds, feeding birds, and landscaping for birds. [www.pueblo.gsa.gov/cic\\_text/misc/forbirds/forbird.htm](http://www.pueblo.gsa.gov/cic_text/misc/forbirds/forbird.htm)

Natural Resources Conservation Service, Backyard Conservation provides a colorful USDA publication, *Backyard Conservation*, and the series of tip sheets covering a wide variety of conservation topics. Available at [www.nrcs.usda.gov/Feature/backyard/](http://www.nrcs.usda.gov/Feature/backyard/).

North American Bluebird Society  
[www.nabluebirdsociety.org](http://www.nabluebirdsociety.org)

Purple Martin Conservation Association  
[www.purplemartin.org](http://www.purplemartin.org)

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