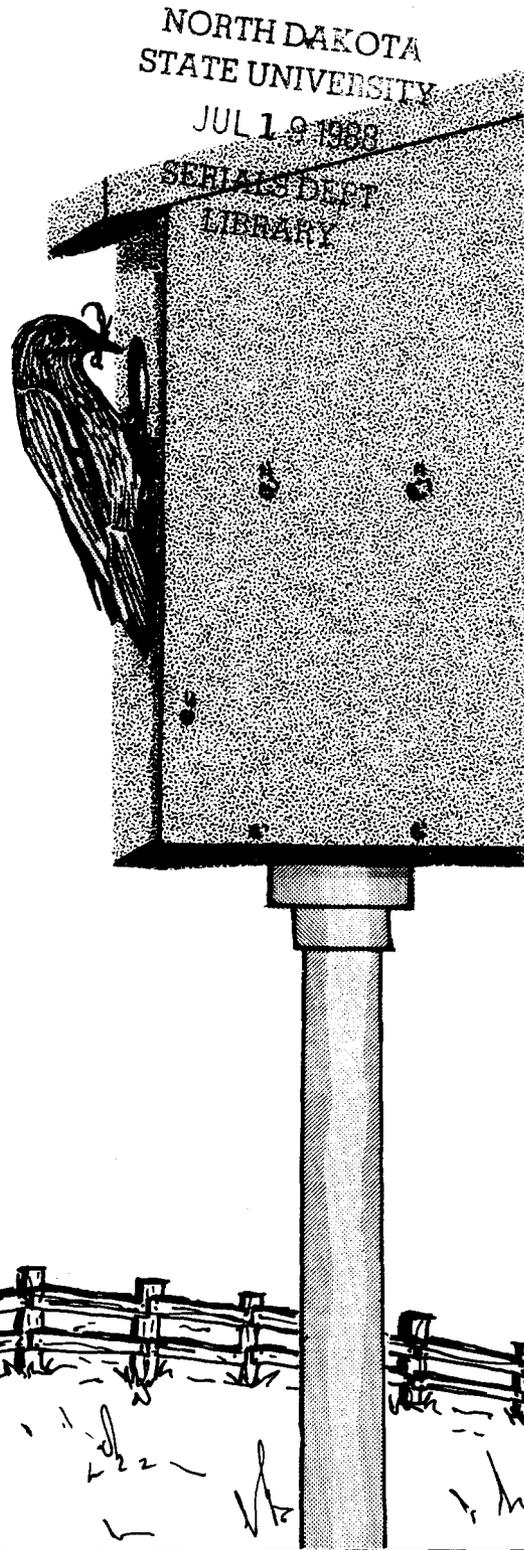




# Homemade Nest Sites for Bluebirds

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NDSU EXTENSION SERVICE

Bluebirds are one of the most admired song birds in North America. We are fortunate to have both eastern and mountain bluebirds nesting in North Dakota. The eastern bluebird is found over much of North Dakota while the mountain bluebird has a much more restricted range which includes the Badlands, Killdeer Mountains and Turtle Mountains.

## EASTERN BLUEBIRD

### Life History

The male is especially beautiful with sky-blue coloration on the upper parts of the body and reddish brown below. The female, equally as beautiful, is light-blue above and pale brown below. Their song is especially soft and mellow. It is made up of plaintive call notes which are sometimes described as "sad."

It is found in North America from southern Manitoba eastward through Canada to Newfoundland and south to the Gulf of Mexico. The western limit of its range is along the eastern edge of the Rocky Mountains in Montana, Wyoming and Colorado. It spends the winter in southern United States.

Eastern bluebirds live at the forest edge where trees are interspersed with or adjacent to fields and grasslands. They may be seen also in shelterbelts and around farmsteads, in towns and cities, especially in shelterbelts or parks.

In North Dakota, the eastern bluebird is found in suitable habitats in most parts of the state, but appears to be most abundant in the Turtle Mountains and east of the Missouri River.

Eastern bluebirds arrive early in the spring and do not leave until late fall. Some have been observed in North Dakota as early as March, remaining in the state until early October.

The nest is usually found in a hollowed-out cavity contained in fence posts, utility poles or dead trees or limbs. Eastern bluebirds also often nest in old woodpecker holes.

The nest cavity is filled with coarse grasses and weed stalks to form a loose cup which is then lined with fine grasses and feathers. A clutch of three to six pale blue to white eggs is laid and then incubated for 12 to 18 days. Sometimes bluebirds may lay a second clutch of eggs and raise two families of young in a year.

The eastern bluebirds eat mostly insects such as grasshoppers, cutworms, caterpillars, ants and flies. They also may eat wild fruits, berries and seeds.

## MOUNTAIN BLUEBIRD

### Life History

The male, which is a little larger than a house sparrow, has a bright turquoise blue coloration on the upper parts of the body and tail. The throat and breast are lighter blue. The blue of the mountain bluebird is paler than that of the eastern bluebird. The female mountain bluebird is less colorful than the male and can be best described as a mixed wash of blue and gray on the back and head, with a

brownish-ash throat that gives way to white on the lower breast. Their song is soft and sweet, much like that of the eastern bluebird but not as clear or as loud. Mountain bluebirds generally sing less often than do eastern bluebirds.

Mountain bluebirds occupy a wide breeding range in North America. They are found throughout the western half of Canada and the United States, mostly west of the Great Plains. Their range extends southward from Alaska and western Canada including western North and South Dakota and parts of New Mexico, Arizona and California. Mountain bluebirds spend the winter in central Washington south to southern Mexico.

In North Dakota, these birds live at the forest edge where trees are interspersed with or are adjacent to fields and grasslands. Mountain bluebirds are especially characteristic of badlands-type habitat.

Like the eastern bluebird, the mountain bluebird arrives in North Dakota early in the spring and does not leave until late fall. Some have been observed as early as March and in the fall as late as mid-October.

The nest is often in an old woodpecker hole. Nests are also found in crevices in cliffs and holes in cut-banks. The nest is usually lined with fine grasses and feathers. A clutch containing from three to eight pale blue eggs is laid and incubated for 13-14 days. Mountain bluebirds also sometimes lay a second clutch of eggs and raise two families of young in a year.

Mountain bluebirds eat mostly insects including grasshoppers, ants, beetles and flies. They have a habit of hovering in the air and darting after flying insects or dropping on insects that have landed on the ground. These birds also eat seeds, wild fruits and berries.

## The Bluebird Nest Box

Both of these bluebirds respond favorably to homemade nest boxes. Following are plans and instructions for building and erecting nest boxes for bluebirds.

Generally bluebirds will accept almost any kind of nest box that they can enter. However, before deciding on what kind of nest box to build, there are considerations which should be taken into account. These include the size of entrance hole, adequate interior dimensions, proper ventilation and drainage, and the capability to open the nest box for examination and cleaning. The inside floor dimensions should not be smaller than 4×4 inches or larger than 5×5 inches or an equivalent number of square inches. The larger floor size is recommended in areas where the nest box may be used by mountain bluebirds.

The inside depth from bottom to top of the nest box should be from 8 to 12 inches. The distance from the floor to the bottom of the entrance hole should be from 6 to 10 inches. Two or more ¼-inch ventilation holes should be drilled near the top of the front or side boards of the nest box. The bottom board should have four or five ¼-inch or ⅜-inch drainage holes. The inside of the front board should be roughened for about 3 inches below the entrance hole to provide footing for the young birds at the time they leave the nest. The nest box floor should be recessed ¼ inch. This is done so water runs off the sides rather than accumulating on the bottom. No perch of any kind

should be attached to the next box. House sparrows may be attracted by the perch and it is not needed by the bluebirds.

Bluebirds are fully satisfied with nest boxes of the simplest design, as long as the basic requirements are followed. Bluebird nest boxes should be made of wood. Almost any kind of wood will do, including old crates, boxes, or scrap lumber which may often be obtained at little or no cost from lumber yards or building contractors. Cedar or pine lumber and exterior grade plywood of  $\frac{3}{4}$ -inch thickness are excellent. (The actual thickness of 1-inch standard dimension lumber is about  $\frac{3}{4}$ -inch.)

The entrance may be a round hole  $1\frac{1}{2}$  inch in diameter or an oval opening  $1\frac{3}{8}$  inch wide and  $2\frac{1}{4}$  inch high. The oval opening seems to be preferred by bluebirds, and it is small enough so starlings cannot easily enter the nest box.

## The One-Board Bluebird Nest Box

While various kinds of bluebird nest boxes give satisfactory results, for simplicity, the "one-board" bluebird nest box is recommended. It is so-named because all the wood components can be cut from a single 6-foot piece of 1-inch  $\times$  6-inch lumber. There are two types of "one-board" houses. Type A has a flat roof and the components can be cut with a hand saw from the 1-inch by 6-inch board using only right angle cuts. Type B has a slanted roof and there are several cuts which are best made with a power saw or other equipment which insure accurate cutting at an angle.

### Materials Needed – Types A and B

**Wood** One 6-foot long piece of 1-inch by 6-inch lumber. This can be pine, cedar, or other wood. The wood can also be  $\frac{3}{4}$ -inch exterior grade plywood.

**Nails** About 16 7d galvanized box nails, plus one or two galvanized nails to hold the side that pivots closed.

## The One-board Flat Roof Bluebird Nest Box

### Construction

Measure and cut the board according to the following dimensions:

1. Front – one piece  $5\frac{1}{2}$  inches  $\times$   $10\frac{1}{2}$  inches. Roughen inside surface below entrance hole.
2. Back – one piece  $5\frac{1}{2}$  inches  $\times$   $17\frac{1}{2}$  inches
3. Sides – two pieces  $5\frac{1}{2}$  inches  $\times$   $10\frac{1}{2}$  inches with two  $\frac{1}{4}$ -inch ventilation holes in each near top.
4. Floor – one piece 4 inches  $\times$   $5\frac{1}{2}$  inches with five  $\frac{1}{4}$ -inch drainage holes as shown.
5. Roof – one piece  $5\frac{1}{2}$  inches  $\times$  8 inches.

Next drill the entrance hole in the front piece,  $1\frac{3}{8}$  inches wide by  $2\frac{1}{4}$  inches high. The top of the entrance hole is  $1\frac{1}{4}$ -inch below the top of the front piece. The bottom of the entrance hole is 6 inches above the floor.

Assemble and nail solidly in place all components except one side piece. The floor piece is recessed  $\frac{1}{4}$  inch above the level of the bottom (Figure 1).

Fit remaining side piece in place and drive two pivot nails, one through the back piece and one through the front piece about 2 inches from top. These allow the side to swing out for cleaning.

Drill one hole on this side near lower edge of the front piece. Insert a nail into the hole and drive it into the side piece. This nail is pulled out in order to lift the side piece to inspect or clean the nest cavity. Sometimes a second nail is used on the back side so that if one nail would come out of place the side would still be held in place.

The back piece should extend 3 inches above and below the box. Drill three or four  $\frac{1}{8}$ -inch holes in top and bottom extensions to allow for fastening to the intended support.

## The One-board Slanted Roof Bluebird Nest Box

### Construction

Measure and cut the board according to the following dimensions:

1. Front – one piece  $5\frac{1}{2}$  inches  $\times$   $10\frac{1}{2}$  inches.
2. Back – one piece  $5\frac{1}{2}$  inches  $\times$   $18\frac{3}{4}$  inches.
3. Sides – two pieces  $5\frac{1}{2}$  inches  $\times$   $10\frac{1}{2}$  inches  $\times$   $11\frac{3}{4}$  inches.
4. Floor – one piece 4 inches  $\times$   $5\frac{1}{2}$  inches with five  $\frac{5}{16}$ -inch draining holes as shown.
5. Roof – one piece  $5\frac{1}{2}$  inches  $\times$  8 inches. Cut the rear edge of the roof at an angle so it fits flush with the back piece.

Next drill the entrance hole in the front piece,  $1\frac{3}{8}$  inch wide by  $2\frac{1}{4}$  inch high. The top of entrance hole is  $1\frac{1}{4}$  inch below the top of the front piece. The bottom of the entrance hole is 6 inches above the floor. Drill two  $\frac{1}{4}$ -inch ventilation holes near top and roughen inside surface below entrance hole.

Now, assemble and nail in place all components except one side piece. The floor piece is recessed  $\frac{1}{4}$  inch above the level of the bottom (Figure 2).

Fit the remaining side piece in place and drive two pivot nails, one through the front piece about 2 inches from top and the other opposite it through the back piece. These allow the side to swing out for cleaning.

Drill one hole on this side near lower edge of the front piece. Insert a nail in the hole and drive it into side piece. This nail is pulled out in order to lift the side piece to inspect or clean cavity. Sometimes a second nail is used on the back side so that if one nail should come out of place the side would still be held in place.

The back piece should extend 3 inches above and below box proper. Drill three or four  $\frac{1}{8}$ -inch holes in top and bottom extensions to allow for fastening to the intended support.

The top of the front piece can be beveled to fit flush with the top piece.

Figure 1. Type A - One-board nest box with flat roof.

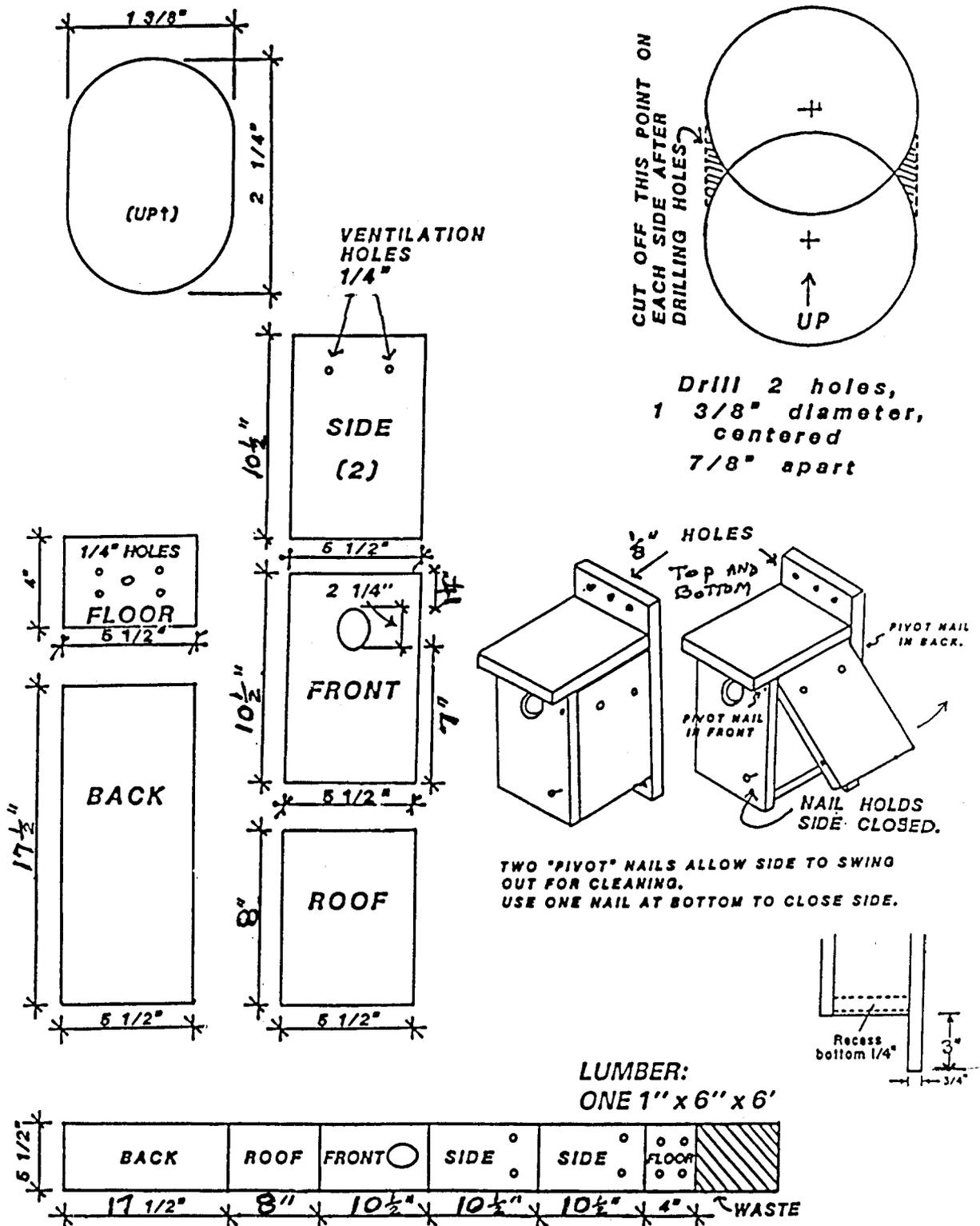
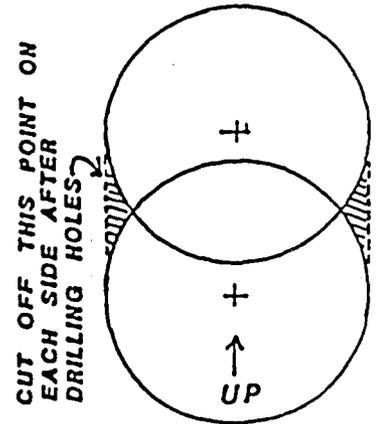
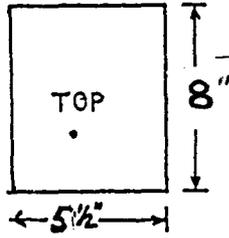
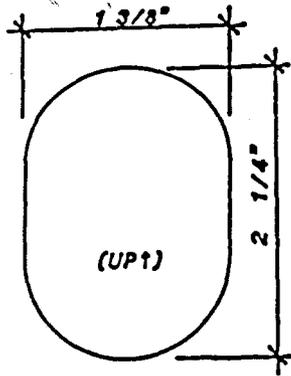


Figure 2. Type B - One-board nest box with slanted roof.

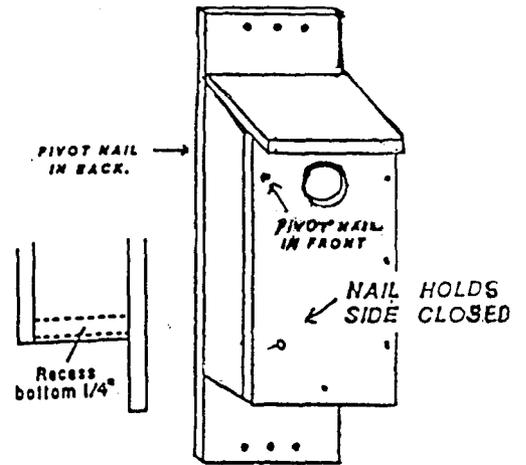
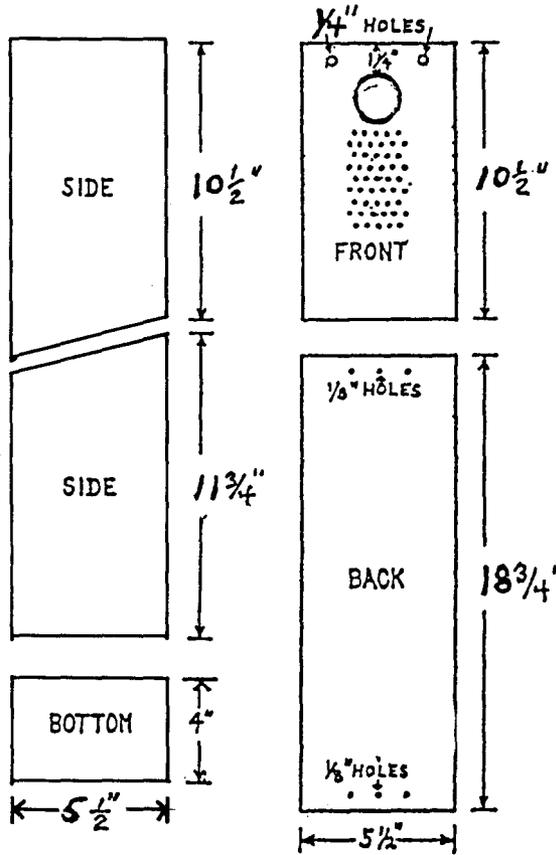


Drill 2 holes,  
1 3/8" diameter,  
centered  
7/8" apart

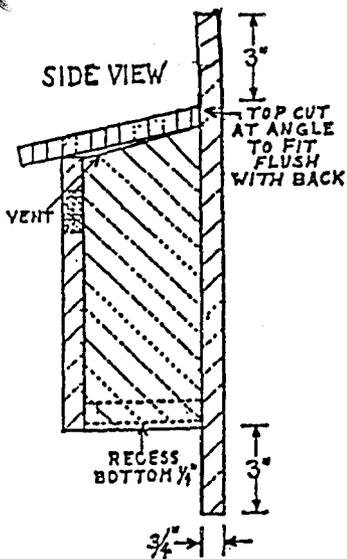
DIMENSIONS SHOWN ARE FOR  
BOARDS 3/4 INCH THICK.

USE 1 3/4 INCH GALVANIZED  
SIDING NAILS OR ALUMINUM NAILS,

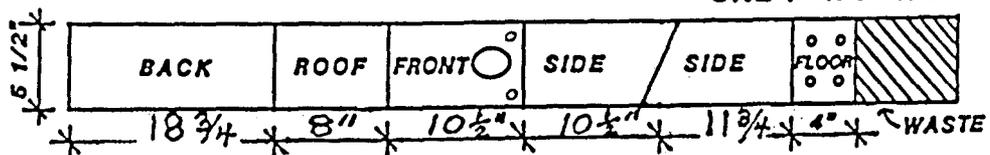
ROUGHEN INSIDE OF FRONT BOARD  
IN AREA SHOWN. 1/8 INCH DEPRESSIONS  
MAY BE MADE WITH AN AWL.



TWO "PIVOT" NAILS ALLOW SIDE TO SWING  
OUT FOR CLEANING.  
USE ONE NAIL AT BOTTOM TO CLOSE SIDE.



LUMBER:  
ONE 1" x 6" x 6'



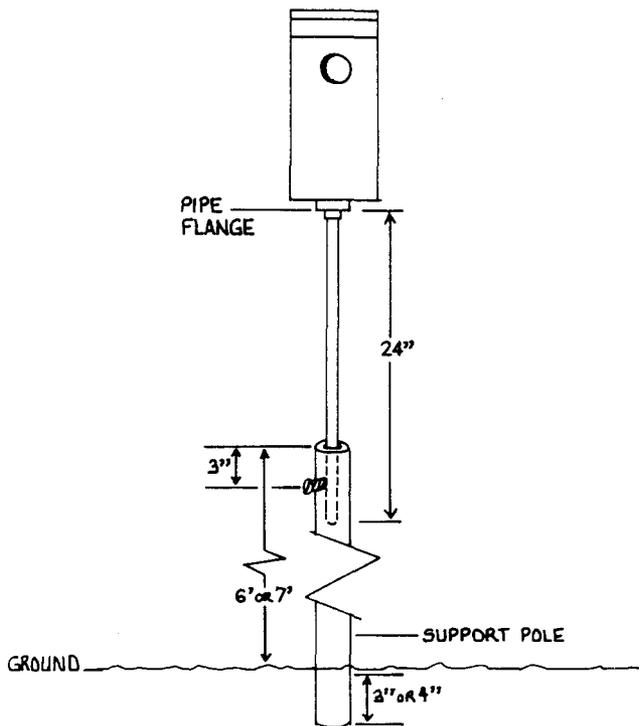
## Mounting

Bluebird nest boxes can be mounted in several ways. They may be attached to existing wood or metal fence posts, power or telephone poles, or on wood or metal posts or pieces of pipe used specially for this purpose.

The one-board nest box has both upper and lower extensions, and both extensions are generally attached to the intended support. This house may also be mounted on top of a wooden fence post. Another way to mount the house is to place the back of the house against the intended support and attach the bottom extension using lag bolts. If this is done, washers should be used with the lag bolts to give the house added stability.

If the support is a metal post or pipe, the nest box can be attached in place by threading wires through holes in the upper and lower extensions and tightening the wires so there is a firm fit. Another way is to use U-bolts which fit around the steel post and pipe, with the threaded ends extending through holes in the extensions. In this case washers are used and the nuts are tightened so the nest box is held firmly in place.

Bluebird nest boxes are sometimes mounted on top of a length of pipe of which one end is driven into the ground far enough so the pipe is rigid. In this case a threaded pipe flange is attached to the bottom of the nest box with bolts or screws. The end of the piece of pipe which extends above the ground is threaded, and the bluebird nest box and support pipe are engaged by simply screwing the end of the pipe into the pipe flange (Figure 3). Galvanized



**Figure 3.** Bluebird house can be mounted on pipe flange assemblies. This allows for quick and easy removal for winter storage in addition to the ability to readily raise or lower nest box height.

$\frac{1}{2}$ -inch or  $\frac{3}{4}$ -inch pipes provide excellent support, and pipe flanges for pipes of these sizes are readily available at hardware stores.

Both the upper and lower extensions can be omitted if a pipe flange will be used. If grease is spread on the support pipe, this will discourage cats, raccoons, squirrels and other animals from climbing up to the house.

Bluebird nest boxes may also be attached to the trunks of trees, but this method is generally considered the least desirable because of the greater danger to the nesting birds from tree-climbing animals like raccoons and cats. Squirrels will sometimes enlarge the entrance holes and use the nest box themselves.

Electric or telephone poles when located in the right places are often suitable for mounting bluebird nest boxes; however, permission should be obtained from the utility company before this is done. If the utility company objects to nails and screws, the nest boxes can be easily wired to the poles.

Sheet metal collars 18 inches or more high can be wrapped around wooden poles or posts or even dead trees to keep tree-climbing animals from getting to the nest boxes (Figure 4). Suitable metal sheets can be obtained at little or no cost from a newspaper or printing office.

## Placement

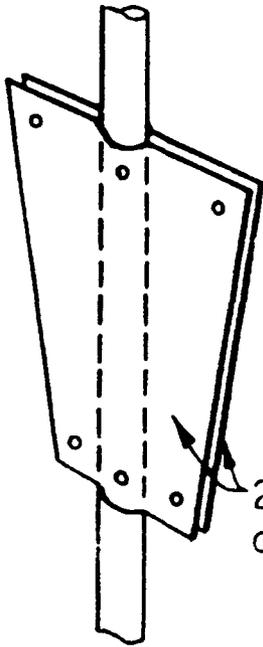
Bluebird nest boxes are best placed in fairly open situations with scattered clumps of trees or shrubs and a considerable distance from buildings and feed lots that attract house sparrows and starlings. Satisfactory locations for placement of bluebird nest boxes include: pastures, fields, shelterbelts, open waste land, fence lines, edges of country roads, large lawns, country cemeteries and golf courses. Rolling terrain with high ground seems to be preferred to low ground. One person who had a very successful bluebird nest box project recommended that the nest boxes be placed near cropland and pasture but not too far from trees and streams. Avoid placing bluebird nest boxes near areas where insecticides are used widely, as these may destroy the food supply or even kill the birds themselves. It is best to locate bluebird nest boxes away from main highways to reduce the chance of birds colliding with moving vehicles.

It is recommended that the height of a bluebird nest box be from 4 to 6 feet above the ground. This distance is measured from the ground to the bottom of the nest box. A good rule of thumb is to place the nest boxes chest-high. Sparrows tend to ignore nest boxes placed 3 to 4½ feet above ground, but bluebirds will use nest boxes placed this low. In pastures, bluebird nest boxes should be placed high enough to that livestock cannot disturb them. When utility poles are used to support a bluebird nest box the nest box should be attached on the east or northeast side of the pole to get some protection from the hot afternoon sun.

In North Dakota, bluebird nest boxes should be in place before the first of April. The nest boxes should be spaced at least 100 yards apart. The entrance should face an open area, preferably in a direction away from prevailing winds and cold rains. There is some indication that bluebirds prefer boxes that face in a southward direction.

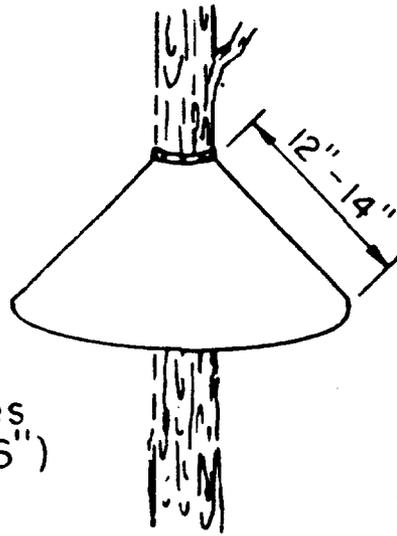
The young will fly 50 to 100 feet on their very first flight from the box directly to a high perch, and they do not return to the nest. For this reason it is desirable to place

### PIPE GUARD

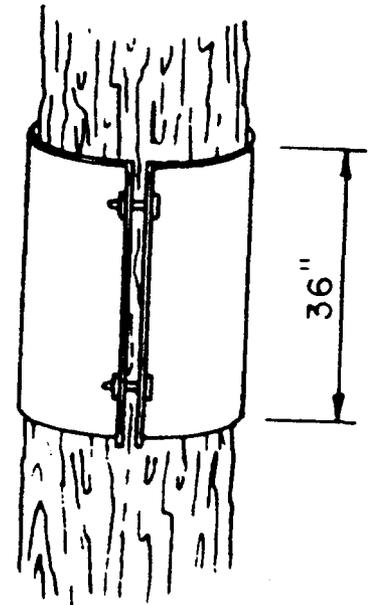


2 flat pieces of metal (36")

### METAL CONE GUARD



### SHEET METAL TREE BAND



**Figure 4. There are a number of ways to "predator proof" your homemade bluebird nest box. Above are examples of three of the more successful techniques.**

the nest box in a situation where such a perch is available to the young.

The tree swallow, another highly desirable bird, will nest readily in nest boxes intended for bluebirds. This isn't all bad, for tree swallows are equally as important to have around. Bluebirds will defend a territory around the nest site, keeping others of their kind from nesting close by. However, if bluebird nest boxes are put up in pairs about 50 to 100 feet apart using the recommended spacing of at least 100 yards between pairs, it is possible to have bluebirds in one nest box and tree swallows in the other. In this way the bluebirds would not be competing with the tree swallows for a place to nest.

House wrens will sometimes nest in bluebird nest boxes and this can cause problems. This can be avoided if the nest boxes are placed away from shrubby, wooded or brushy areas.

### Maintenance

Painting or staining will improve the appearance and life of the nest box even though this is not necessary. If you choose to paint or stain, use only light colors such as light brown or tan. Dark colors may cause the interior of the nest box to get too warm on hot sunny days. Using linseed oil helps protect the wood and results in a natural finish. The inside of the nest box and inside rim of the entrance hole should not be painted or stained. Do not use chemical wood preservatives.

It is important that bluebird nest boxes be built so they can be opened for inspection or cleaning. The nest boxes described have this feature. It is recommended that the nest be removed and the nesting compartment be brushed

out after the young have left the nest. Make sure that the interior of the nest box is free of leftover nest material or other debris by late March or early April, prior to the nesting season. Squirrels or mice may occupy the boxes in winter. To discourage this the nest box side-door can be left open during winter. If this is done be sure to close the door before the bluebirds return to nest.

The lifespan of your house can be also greatly enhanced if they are removed after the nesting season and stored in a dry place.

The bluebird is one of America's favorite songbirds. It is admired by old and young alike, and activities to help the bluebird are very popular. Projects to help bluebirds provide a very rewarding activity for many organizations such as 4-H clubs, garden clubs, bird clubs, Boy Scouts and Girl Scouts. Groups wishing to engage in a bluebird project can obtain guidance and assistance from the North American Bluebird Society and other agencies or groups whose names and addresses are listed in the concluding section of this circular.

Sometimes clubs or groups set up bluebird trails. A bluebird trail consists of a number of single bluebird nest boxes spaced 100 yards or more apart or in pairs in such manner that they may be inspected conveniently on foot. The nest boxes may also be checked periodically during the nesting season to record data on nests, eggs, young, etc.

The one-board bluebird nest boxes have simple designs and are easy to build. If placed and maintained according to the guidelines discussed in this circular, they will provide a safer nest site for bluebirds. Don't be discouraged if your nest box isn't used by bluebirds the first year. It often takes time for bluebirds to move into an area once nests become

available for them. However, once bluebirds find and use your homemade nest boxes you are well on the way to establishing a resident population that will return each year to nest in your area.

### **North Dakota's Bluebird Recovery Team**

North Dakota now has its own bluebird recovery program sponsored by the Dakota Wildlife Trust, a new non-profit conservation organization. To join this bluebird recovery effort, write; Dakota Wildlife Trust, Box 572, Valley City, ND 58072 and express your interest. The trust annually prepares a bluebird directory which lists all team members and tells about their activities.

### **References and Further Reading**

Bluebird Recovery Program  
Dakota Wildlife Trust  
Box 572  
Valley City, North Dakota 58072

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P.O. Box 566  
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Silver Spring, Maryland 20926

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