

Eastern Bluebird PVC Nest Box Bonnie Tull



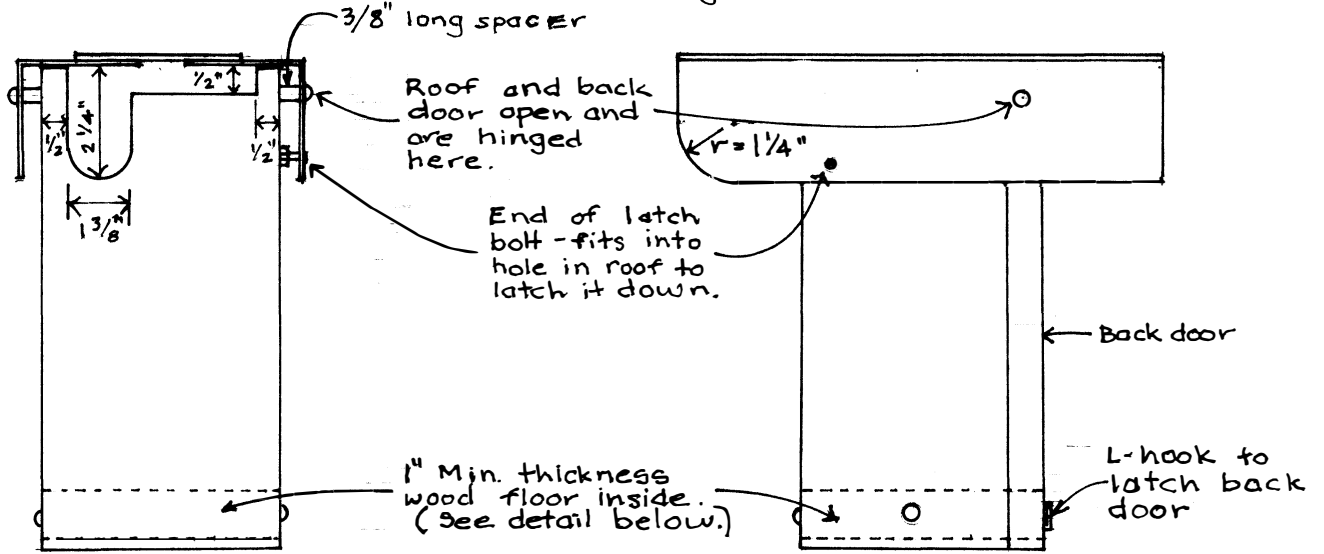
Dripping Springs Ranch Park

2019

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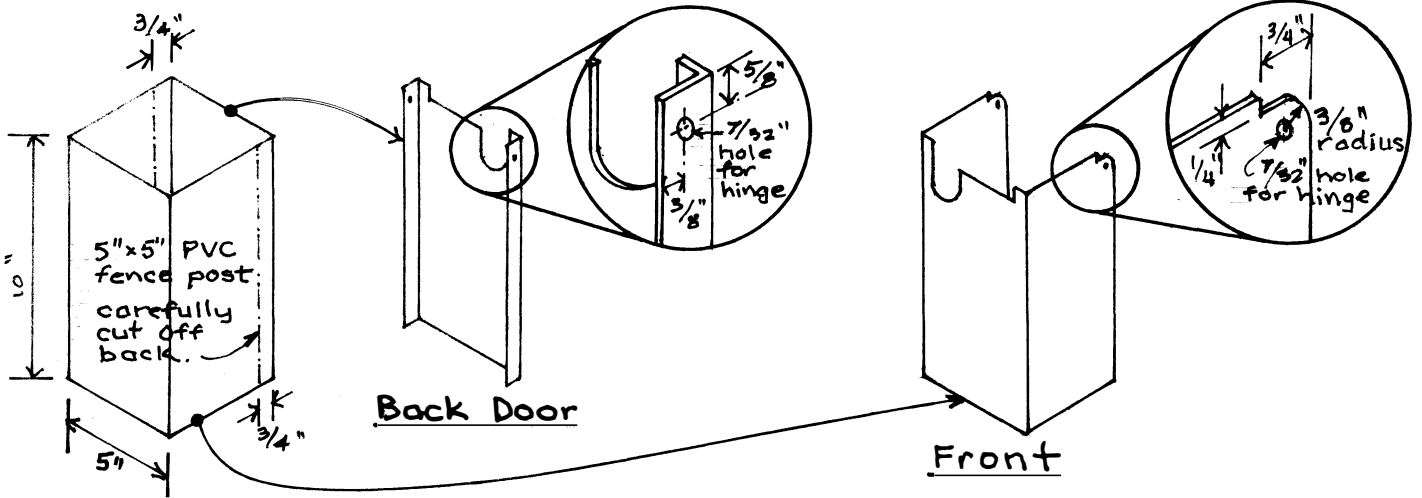
Modified version of a N.A.B.S.-approved design.

Feb 2013

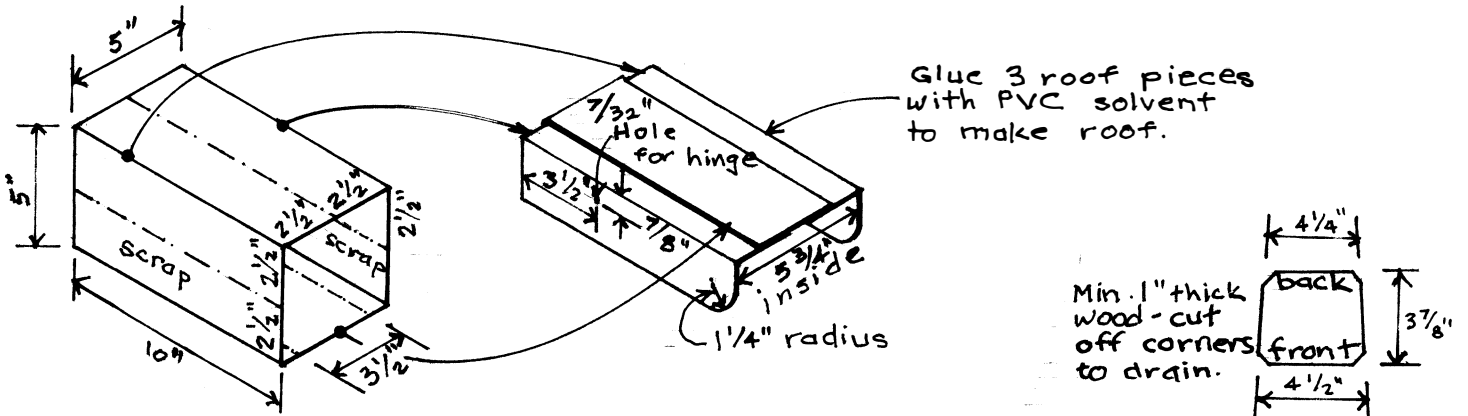


Front View

Right Side View



Body of Nestbox



Roof

Floor

SEE ASSEMBLY NOTES

Parts List

Note: This becomes a “forever box” with the use of stainless steel hardware

- 20 inch length of 5 inch square PVC fence post
- 1 x 6 inch deck board untreated for floor
- 3/8 inch stiff water supply tubing for spacers in hinged roof and front
- c.1/2 x 1 ½ inch L screw for clean out back opening
- (2) 1 ¼ inch #10 machine screws with (2) lock nuts and (4) washers for roof/back hinge
- 5/8 inch #10 machine screw with (2) nuts for roof latch
- (3) roof screws for floor
- Goop for ladder
- PVC glue for roof connector
- Thin wood strip for ladder

Mounting Choices

- Pipe flange with glued PVC step down parts to fit 6 x 2 inch PVC pipe over 6ft T-post or:
- 2 x 6 inch PVC pipe screwed to back of box with 2 1/2 inch #10 machine screw with nut – set over 6ft T-post with c. 5/8 inch screw to stabilize bottom of pipe on the nest box screwing it only thru the inside pipe wall. Mount the long screw as high as possible.
- 6ft T-post

Eastern Bluebird PVC Nestbox Construction Instructions

1. Cut 20 inch length of 5 inch (verify dimensions) PVC square fence post in half. One half will comprise box, and the other will comprise the roof parts. Alternatively, just find two 10 inch sections. These lengths can vary somewhat as long as any critical other dimensions are changed to coordinate.
2. Cut $\frac{3}{4}$ inch lengthwise off box fence section for back opening side
3. Cut roof section in half lengthwise for roof parts.
4. Cut one of the half sections in half again lengthwise for roof parts.
5. Cut flat section $3\frac{1}{2}$ inches wide out of the other half section for roof connector. The curved corner sections that remain can be used to make supports for PVC gluing into the bottom of the box for a wooden floor block to be screwed onto without putting screws through the box itself as an alternate floor construction method using more PVC parts.
6. PVC glue the flat section over the two roof sides leaving 1 inch free in center to create wider roof. Again, roof width may be varied as long as the other part dimensions, screw sizes, etc are made to correspond.
7. Notch $\frac{1}{4}$ inch in top back sides $\frac{3}{4}$ inch in.
8. Round off back side corners on $\frac{3}{8}$ inch radius curve.
9. On front top right face cut $\frac{1}{2}$ inch notch $\frac{1}{2}$ inch in from front right side to $\frac{1}{2}$ inch from opposite side.
10. On front top left face cut oval entrance hole $2\frac{1}{4}$ inch deep from high side and $1\frac{3}{8}$ inch wide.
11. Cut floor block $4\frac{1}{4} \times 3\frac{7}{8} \times 4\frac{1}{2}$ inches and cut corners off for drainage and ventilation.
12. Recess floor block $\frac{1}{4}$ inch above bottom edges of PVC front section sides and attach with 3 roof screws, one in each of the three sides.
13. On back top left face cut $\frac{1}{2}$ inch notch $\frac{1}{2}$ inch in from back left side to $\frac{1}{2}$ inch in from opposite side.
14. Cut oval hole in top left back face as in #10.
15. Drill #10 holes $\frac{3}{8}$ inch down from tops of back front sides and midway from back and front edges. Drill through both surfaces at once.
16. Set roof on center, mark drill holes to coincide with the ones in the box sections, drill holes through roof side overhangs.
17. Cut (2) $\frac{3}{8}$ inch tubing spacers.

- 18. Insert (2) 1 ¼ inch #10 machine screws through roof overhanging sides, tube spacers, back and front sections, and secure with washers and locking nuts on each side of box.**
- 19. Drill #10 or slightly larger holes for 5/8 inch #10 machine screw in lower front right edge of roof overhang and front right side of box. Run nut all the way to the head of the 5/8 inch long #10 machine screw and insert through hole from inside of box. Add nut on outside and tighten bolt in place. Adjust length of projection so a moderate effort will flex lid out and over bolt and secure lid in place.**
- 20. Cut ¾ inch slot in back bottom edge of box and drill hole for L screw for back latch. Insert L screw.**
- 21. Cut c. 6 x 2 inch thin wooden strip and cut shallow notches across one surface in a ladder effect. Cut oval shape in top to match door.**
- 22. Goop glue wooden ladder to inside front wall and sand or file door edges smooth.**
- 23. Optional: can cut front edges of roof overhangs into curves for better visibility, less weather proofing.**
- 24. Note: File or sand smooth all rough edges that may come in contact with the birds**
- 25. Note: This box is made with two offset openings, one in back and one in front. This is an experimental approach designed to enable a trapped Bluebird to have a bolt hole. I have found dead mature Bluebirds in my boxes on two occasions most probably killed by House Sparrows, and I am trying this idea. It would be difficult to prove or test that it works without close observation. In Texas I believe the heat is such an issue that having the additional ventilation is not a drawback and may be a benefit. The box can easily be modified to a more standard central single opening but leaving the half inch notch in the back for ventilation. Also the back opening on this box can be closed by just gluing a flat piece of PVC or wood over it.**
- 26. Note: It is possible to increase the insulation by gluing spacers and shield material of some kind onto the outside walls and roof of the box as I typically do with wooden boxes. However, this kind of defeats the idea of the forever box made out of PVC – unless one has a truly endless source of PVC.**

Bluebird Nest Boxes and Monitoring

There are many types of Bluebird nest box construction that can be used. Almost any design shown on the TBS, NABS, Nestwatch.org, or Sialia Sialis web sites are basically adequate. However, in Texas we have **the added problem of heat** which, I believe, inhibits the birds' number of broods. We can alleviate this somewhat by modifying conventional designs with the addition of insulation, shade, and/or ventilation to the nest boxes. Painting the boxes white helps, but I hate to call attention to them for fear of people, who might vandalize or disturb them. I recommend that roofs be designed with an overhang of two to five inches. I often use pieces of old tin or aluminum to top them. The reflective quality of silver colored metal is great for cutting down the heat factor. If tin is not available, you can add a shade by fixing spacers between two layers of wood or whatever decently weatherproof material on hand. For instance, you can use recycled old shingles or even plastic. I also put spacers between the tin and the wood roof. Corrugated tin provides its own spacing to a certain extent. For spacers, I use bits of wood or ½" of PVC tubing. It is OK to attach shades and spacers with Goop, but the latter, though quite durable, is not as long lasting as screws. For my PVC boxes, I use Goop. It is not toxic, when it dries. I also use shades on the southern sides of my boxes, and I typically glue the corrugated plastic such as you see in real estate signs on the sun exposed sides with spacers.

For ventilation it's usually easiest to cut out 1/2inch indentions in the tops of the side walls and/or to leave ½ inch spacing between the tops of the backs and fronts and the roof. If that is not possible, you can drill ½ holes in the upper sides. I also cut the corners off of the floors, so that **water can drain**, and air can circulate from the bottom up. You can drill holes if necessary. The holes and spaces should not be more than ½ inch in order to discourage predators.

Most boxes are made of wood, ideally ¾" thick or more and a floor of at least 4" diameter. However, I've begun experimenting with boxes made from PVC, either square salvaged fence posts or at least 4" diameter PVC pipe. The PVC makes what I call a "forever" box, as it never deteriorates. It also has built in reflective qualities being white. Woodpeckers can't damage it which means that it doesn't need an entrance hole surround guard. Entrance holes should be at least 6 or 7 inches from the floor. I do attach "ladders" to the insides of the PVC box with glue below the door, as it makes egress easier for the fledglings. Ladders are just strips of wood c. 1.5" wide with grooves cut across them in intervals of c. 1/2" Engineering opening doors on the PVC boxes is a bit more of a challenge than wood, but it can be done using just screws or rods. The roofs of PVC boxes can be made of PVC also, and I have plans for various options. The Bluebirds readily accept these boxes. If you would like to see some examples of wooden and PVC boxes in use, please contact me for a "tour".

Some say that **oval entrance holes** are better at deterring House Sparrows, but I like them, because they allow the birds to sit in the opening comfortably. However, when cutting them, it is critical that they be no bigger than 2 1/4" high by 1 3/8" wide. If any larger, they can allow Starlings and Cow birds to enter. Bluebirds prefer the oval holes to the standard 1 ½" round ones, but some studies also indicate that Starlings can enter the oval holes. The oval holes are a bit more difficult to cut, but it can be done fairly well with a jigsaw or by using a 1 3/8" drill bit to begin the hole.

It's important that the nest box have a **door that opens easily**, preferably without a tool, as they need to be monitored fairly frequently, and you need to be able to see into them easily. I always carry a small telescoping mirror for that job. Some telescoping mirrors come with lights which is helpful as well. I prefer doors that open either with a side or bottom hinge. Those that open from the top make viewing the inside of the nest more difficult, unless the roof itself is hinged.

Finally, part of the construction should always **include a predator guard**. The best ones are made out of stovepipe, the designs for which can be found on the web sites mentioned above. Although the stove pipes seem to be totally effective against animals like raccoons, squirrels, and cats, they have been defeated by big snakes. In an effort to discourage predation by snakes, I've started to put large squares of hardware cloth on top of the baffles. I cannot say that these are

an effective deterrent, but I don't think any of my boxes with the hardware cloth have had snake predation – yet. Some birders use only a door guard or a Noel Guard, but I use these only for back-up. A roof that overhangs 5 inches or more will prevent an animal from being able to reach into the box, but if you mount the boxes far enough from overhanging branches, close fences, and high enough (at least 5 feet), Animals and snakes should not be able to reach it from the roof. I also find that a metal or PVC entrance **hole guard** prevents damage and enlargement of the hole by woodpeckers which can be a big problem. You can make one by cutting one from sheet metal or PVC, and they are available for purchase online. Whether metal or PVC, be sure that you file the edges, so they are not sharp. Sharp edges in either metal or wood can cause excessive feather wear in the birds.

I try to face all my boxes with the entrance hole opening to the Northeast. This keeps the sun from entering directly through the hole. However, the direction it faces is not the most important issue. If it is on the edge of an open space, it is best to face it towards the open area. I recommend that the boxes be **placed as far away from edge habitat as possible**, because that discourages other hole nesters such as Titmice and Wrens.

For mounting I use 6ft metal t-posts driven into the ground with a post driver. The box itself can be screwed on with brackets or just set over the post with a short section (c.6") of 2" diameter PVC pipe attached either to the bottom or back of the box. This latter method makes it easy to take down the box for maintenance and cleaning.

For monitoring, it's best to check the boxes about once a week during the nesting season which lasts from about February through July. It's easiest to carry an index card for each nest box listing the findings of each monitoring session: date, time, number of eggs or hatchlings, first egg laid date, first hatching date, whether or not adults were present, whether the nest has been disturbed, any obvious predation, etc. Nestwatch has blank forms available for downloading. When it is determined that nestlings are 14 days or more old, the box should not be opened because of the danger of eruption, before the nestlings are ready. If in doubt, don't open. The only monitoring that is really necessary is the cleaning out between broods, and even that can be skipped, but it is better not to skip it. If you are reporting the nesting results to the Cornell Nestwatch site, it is best to monitor them regularly, if possible, though Cornell is happy to take whatever data you have.

Average times for the different milestones during the breeding season are available online as well as from any of the good Birding Apps such as IBird and Sibleys or from any good field book. The average time from egg laying to fledging is 16-21 days. A female will lay one egg/day usually in the morning until she has 3-7 eggs after which she begins to brood. The normal batch is 5 eggs, but the number will often go down with succeeding broods in the same season. It is a tremendous stress on the female's body to lay full nests for three broods/season. In Texas two broods is more common.

Cleaning the boxes normally needs to be nothing more than sweeping or scraping them out, but after several seasons or a particularly messy one, you may want to take the box down and wash it out. Cleaning should be done after each brood has fledged. If not done, the birds will simply build a new nest on top of the old one, but cleaning insures that any pests or parasites are removed.

Nest boxes are frequently used for roosting in the winter, and Bluebirds will roost communally in cold weather. I try to winterize my nest boxes by stuffing the ventilation openings with pieces of foam, but this is not necessary.

I hope this is helpful in getting your Bluebird nest box trail to be successful. Please don't hesitate to call me, if you have questions or would like more information or to see examples of nest boxes.

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