

NABS Factsheet

Nestbox Recommendations

The North American Bluebird Society (NABS) no longer approves specific nestbox designs. We recommend the specifications given in this document for nestboxes erected for small, native cavity nesters like bluebirds.

Probably no nestbox is “perfect” but if you buy or build one that follows the guidelines given in this document, you will increase the odds that the birds coming to your nestbox will remain safe through the nesting cycle and that their offspring will fledge successfully. A word of caution: We have found that some nestboxes may be sold with a “NABS approved” logo do not conform to these recommendations. Please tell us if you find such a nestbox.

NESTBOX STYLE/DESIGN *to attract and ensure safety of and suitability for native birds*

- A wide variety of good nestbox plans are available online including: the NABS website: www.nabluebirdsociety.org/nestbox-plans/ and also NestBox Builder: <http://nestboxbuilder.com/nestbox-plans-for-bluebirds.html>
- Because of regional variation in bird species, predators, climate, and other factors, nestbox styles or nestbox features that work well in one area may not work as well in others. Many bluebird landlords have favorite styles. Contact experienced bluebirders in your area to learn what works best where you are. The NABS website at lists Affiliate organizations that can also help you with region-specific information: <http://www.nabluebirdsociety.org/affiliates/>

CONSTRUCTION MATERIAL *to help the box last, maintain safe temperatures, and keep it safe from predators*

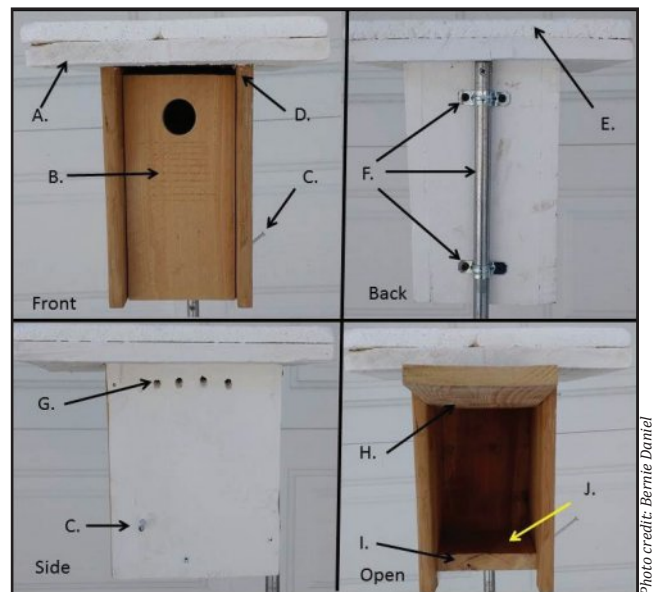
The following materials work best for constructing bluebird nestboxes:

- Solid wood: $\frac{3}{4}$ to 1 inch thick, of softwoods (such as pine, which should be sealed with a water-based paint or stain) or hardwoods that will weather well.
- Exterior grade plywood (i.e., made with water-resistant glue.) To prevent the layers from separating over time then can be sealed with a water-based paint or stain.
- Note: In addition to these materials, some bluebird monitors have had success with boxes made of 4 inch diameter PVC drain pipe, 5 x 5 inch PVC fence post cladding, or recycled plastic.

Do **not** use nestboxes made of:

- Pressure-treated plywood, since some preservatives or resins used as to seal out water could be toxic to the birds.
- Flimsy material such as paper milk cartons, corrugated cardboard boxes, etc., which are easily destroyed by weather and predators.
- Metal, since it will result in the nestbox severely overheating in hot weather.
- Clay or ceramic, since they break and retain heat.

Features recommend on bluebird nestboxes



Shown above are some of the ideal features for a bluebird nestbox. The box shown is made of $\frac{3}{4}$ inch western red cedar and coated with white exterior latex paint and features a 1 $\frac{9}{16}$ inch round entrance hole. Other preferred features include: A. the roof overhanging all sides (5 inches on front, 2 - 3 inches on sides and back); B. recessed door (2 inches); C. down-drilled door retainer nail; D. $\frac{1}{2}$ inch ventilation slot; E. $\frac{1}{2}$ inch polystyrene heat shield; F. $\frac{1}{2}$ inch electrical conduit pole with metal strap hangers; G. up-drilled air vents; H. kerf cuts under the entrance hole; I. recessed floor (1 inch); J. floor holes ($\frac{1}{4}$ inch) for water drainage. See to the left for detailed explanations on nestbox features.



ACCESS to facilitate monitoring of the nest, and cleaning after chicks have fledged

- It is imperative that all nestboxes can be opened -- side, front, or roof opening is a matter of personal preference – each has pros and cons. Do not use a bottom opening box.
- The cleanout door should have a pivot point at the bottom or the top, and should open in a way that allows for ease of monitoring and does not disturb the nest.
- A screw or down-angled nail in a pre-drilled hole must be used to keep the door securely closed.
- If vandalism or tampering is a concern, secure the door with galvanized screws—preferably Phillips head, deck screws, or those requiring an uncommon bit (e.g., square- or star-shaped.)



Photo Credit: Williston Conservation Trust

Nestbox door open for monitoring showing four 6 – 8 day old bluebird chicks.

ROOF to keep rain, snow, sun and predators out of the box, and to prevent temperature extremes inside the box

- The roof should cover the back edge of nestbox, unless other features prevent rain from entering the joint between back and roof.
- The roof should extend beyond the box entrance hole in the front, and also beyond any ventilation holes on the sides. An overhang of 2 inches on each side is recommended, and more (e.g., 3 to 5 inches, especially in the front) is better (see first image of nestbox features above).
- Weather resistant materials such as plastic, Hardie Board or roofing shingles can be used for the roof, if there is sufficient insulation underneath (see Heat & Cold Protection).
- A single sheet of plexi-glass or a galvanized metal roof is not recommended because of mortality from overheating.
- A box with a hole through the roof is not recommended as the contents are too exposed to weather and predation.

ENTRY HOLE to keep predators and European starlings out

For all three species of bluebirds, a 1 9/16 inch round hole is acceptable.

- For Eastern Bluebirds, you can use a 1½ inch round hole, a 1⅜ x 2¼ inch vertical oval hole, or 1⅝ inch horizontal slot entrance.
- Western and Mountain Bluebirds prefer a 1 9/16 inch round opening or 1 3/16 inch slot entrance.
- Where the ranges of the species overlap, use the larger opening.



PhotoCredit: Dean Rusk

Examples of typical bluebird nestbox openings (left to right) ½ inch round hole; 1 3/8 X 2 ¼ inch oval hole; and 1 ½ inch slot.



Photo Credit: William Page Pully

- If the hole is enlarged (e.g., by woodpeckers or squirrels), replace that part of the box, or put a metal or wooden hole guard over the enlarged hole.
- Mount the box so the entry faces east or south to prevent afternoon overheating.
- Face the entry away from prevailing winds to minimize entry of rain or snow.

A metal plate serves as a hole guard and prohibits enlargement by rodents or woodpeckers



INNER WALL UNDER ENTRY HOLE *to allow mature chicks and adult tree swallows to exit the box when they are ready to fledge*

- The recommended depth from the bottom of the entry hole to the floor of the nest box is between 4½ to 6 inches.
- The front wall below the entrance hole should have a rough surface.
- If the wood is rough on one-side, face the rough side towards the inside of the box.
- If the surface below the entry hole is smooth, cut shallow grooves (“kerfs”) horizontally across the inner wall to form an escape ladder.
- Hardware cloth is not recommended for a climbing surface since birds can get their feet caught in it.



Photo Credit: Bet Zimmerman

Inside of nestbox with kerf cuts below entrance hole.

FLOOR SIZE *to accommodate a large clutch, avoid the need for voluminous nesting material, and help nestlings maintain body temperature*

- Typical ideal floor sizes range from 4 X 4 inch (16 square inches) and 5 X 5 inch (25 square inches) up to 5½ X 5½ inch (30 square inches.)
- Western and Mountain Bluebirders generally prefer to use the larger floor sizes -- actually Eastern and Western Bluebirds are quite similar in size, Mountain Bluebirds are a bit larger.
- Note: Other box styles with smaller floor space, like the Peterson or PVC circular boxes are acceptable.

WATER-RESISTANCE & DRAINAGE *to keep the interior of the box dry, prevent rain from entering during storms, facilitate air circulation, and help the box last longer*

- Exterior seams (where boards meet) should be tight and/or sealed with exterior grade silicone or latex caulk.
- Floor drainage is recommended by either cutting ‘dog-ears’ at each corner, or drilling or cutting ¼ to ½ inch holes in the floor.

PAINT/STAIN *to prevent overheating and help the box last longer*

- Natural or unpainted wood is fine, especially for woods like cedar and redwood that weather well.
- If the exterior is painted or stained: Use only nontoxic products (e.g., water-based latex paint, raw Linseed oil, or Thompson’s Water Seal®.)
- Use light colors such as earth tones (light green, gray or brown) or white, to reflect sunlight
- As a general rule, the inside of the nestbox should not be painted.

HEAT & COLD PROTECTION *to keep eggs, young and brooding parents from getting too hot or too cold*

- Vents should be included, placed high on the sides under the eaves of the roof (e.g., three, several ¾ inch diameter holes on each side.) Vent holes drilled at an upward angle will reduce the problem of water entering the box.
- Vent holes may not be appropriate in areas where gnats are a serious problem or in colder northern climates.
- Vent holes can be plugged during exceptionally cold or wet weather.
- A double roof (with Styrofoam, wood block or an air gap/spacer in between) can be used to keep the interior from getting too hot or too cold.



Photo Credit: Texas Bluebird Society

Nest box with heat shields to lower internal temperatures on hot days.

MOUNTING AND PREDATOR DETERRENCE *to keep nestbox contents safe from the typical predators found in your area*

- In areas with climbing predators (e.g., raccoons, cats, snakes), the nestbox needs to be equipped with a predator-resistant device. Options include a wobbling baffle, a Noel Guard, regularly waxing metal poles, etc. For more information see the NABS Factsheet on Predator Control at www.nabluebirdsociety.org/fact/bluebirdfacts.htm
- The nestbox should ideally be mounted on a smooth, sturdy support pole (such as ½ to ¾ inch electrical metal conduit (EMT), or a T-post with 1.5 inch EMT on top.).



Photo Credit: Fred Stille

Nestbox fitted with a Kingston stove pipe pole baffle to discourage climbing predators.

- Extending the nestbox back panel below the nestbox body will allow you to attach the nestbox to the pole with either screws, nails, pipe hangers, wire, or U-bolts.
- Mount nestboxes with the entrance hole at least 5 feet above the surface of the ground.
- Mounting on tree trunks is not recommended because it makes the nestbox too accessible to climbing predators.
- In some areas e.g., the Western USA where snakes are not an issue, boxes can be successfully hung from trees, via a large hook attached to the nestbox roof. (Monitoring boxes high in trees requires specialized equipment – see <http://www.nestboxbuilder.com/nestbox-article-hanging-nestboxes.html>)
- Perches should never be used on any bluebird nestboxes, because they are not needed, and they facilitate harassment by non-native House Sparrows.
- Wooden guards placed over the entry hole are not effective in eliminating raccoon predation (although a wooden guard or metal plate can prevent squirrels or woodpeckers from enlarging the entry hole.)



Photo Credit: Fred Stille

A Noel guard around the nestbox hole to discourage climbing predators such as raccoons

MAINTENANCE *to ensure that boxes remain in good condition to protect contents*

- Ensure that the entrance hole size is not enlarged.
- Repair or replace cracked or rotten wood.
- Check to make sure that the nestbox continues to resist water intrusion.
- Clean the interior after each brood has fledged to reduce parasites and prevent the nest from getting too close to the entrance hole.

Note: *If you are building your own nestboxes, use all appropriate safety equipment, including respiratory and eye protection.*

If you want to help bluebirds survive and thrive, please consider joining NABS. You will also receive our quarterly, full-color journal **Bluebird**. For information on joining NABS, visit our website at <http://nabluebirdsociety.org/index.htm> or our Facebook page at <https://www.facebook.com/NorthAmericanBluebirdSociety>.

The North American Bluebird Society Inc. is a registered non-profit (501.c.3) organization dedicated to education, conservation and research to promote the recovery of bluebirds and other native cavity nesting bird species of North America.