

Nest Box Construction Notes

by Tom Kott

Nest boxes are sized to suit the species of cavity nesting bird you are trying to attract. Even though the entrance hole and box sizes vary, they all have common design features and assembly methods.

Material

- Wood is the preferred building material for any nest box as it is easy to work with, is more natural and provides insulation.
- Pine, cedar or spruce boards, $\frac{3}{4}$ " thick minimum
- Spruce exterior grade plywood, $\frac{5}{8}$ " thick minimum
- Due to its tendency not to crack and split open, plywood will tend to last longer.
- Pressure treated wood should never be used to build a nest box.

Fastening

- The nest box should be securely fastened.
- Typically, 2" long galvanized ardox nails are used to fasten a nest box together.
- To increase the life span of the box and keep it tight and dry, use #6 x 1-1/2" wood screws
- Exterior wood glue can also be used to increase durability and keep the nest box tightly sealed.

Entrance Hole

- After cutting the entrance hole, remove all rough edges with sandpaper.
- Some kind of water drainage hole is required in the floor.
- Drill four $\frac{3}{8}$ " (10mm) holes for a typical Bluebird nest box – larger nest boxes require more holes.
- You can also cut $\frac{3}{8}$ x $\frac{3}{8}$ (10mm x 10mm) mitre cuts on two or more corners of the floor
- To prevent water from wicking up from the bottom of the nest box (capillary action), the floor should always be recessed at least $\frac{1}{4}$ " (6mm) up from the sides of the nest box.

Fledgling Grooves

- Most fledglings need a rough surface below the entrance hole so they can climb out
- A simple method is to cut horizontal grooves approximately 1/8" (3mm) deep by a saw blades width, spaced about 1" (25mm) apart
- Grooves should be cut from below the entrance hole to about 4" (100mm) off of the nest box floor.
- Wire mesh is not as effective.

Door

- Your nest box must have a door
- Typically, a hinged door is located on the right or left side panel of the nesting box to provide access for cleaning and monitoring.
- The door is usually hinged from the top, using two nails as crude hinges.
- Although other latches can be used, a single #8x1-1/4 wood screw can be used to provide a simple, secure and cost effective lock.
- A hinged access roof makes monitoring and cleaning difficult

Ventilation Holes

- In southern Ontario, the addition of ventilation holes is of less importance than the need to seal the box tightly against the infiltration of rain and cold winds.
- Far more fledglings die due to hypothermia in a poorly sealed nest box than to heat-induced stress.

Paint Finish

- Use a flat or semi-gloss exterior latex paint.
- Paint the exterior of the box brown, green, grey or some other colour that will assist in camouflaging the nest box.
- Do not paint the interior or entrance hole of any nest box.

Roof Protection

- Make sure the roof is well sealed – fill in all cracks where the roof is attached to the sides of the nest box with caulking
- The roof is exposed to all the elements – it will deteriorate sooner.
- For extra protection, paint with at least two coats of paint.
- You can also cover with an asphalt roof shingle or piece of tin, cut to fit the roof.

Predator Guard

- Predator guards are vital.
- Raccoons are extremely adept in climbing practically any type of steel pipe or wooden pole.
- Raccoons can and will enter your nest box and destroy the contents.
- Cone or tube type guards provide good protection.
- If you can't put up a predator guard, do not put up the nest box.



Left - A cone guard made of sheet metal

Right - A stove pipe guard with galvanized mesh at the top to prevent snakes from slithering up the pole.

- Photos by John Millman



EASTERN BLUEBIRD NEST BOX GUIDELINES

- **Location, Location, Location!** Bluebirds are ground feeders - they like short grass and open areas. To reduce competition with House Wrens, nest boxes should be placed at least 31m

(100ft) away from wooded areas. Typically, you can place the boxes on the edges of areas where grass is regularly cut. Pastures are one of the best areas to place boxes as the droppings attract an endless source of bugs. Orchards are also a good location, as long as the nesting box and surrounding area does not get sprayed. More and more golf courses are adding nesting box trails as part of naturalization projects.

- **Position:** Boxes should be placed with the entrance hole height at about 1.8m (6 ft.), facing southeast in Southern Ontario. In other areas, make sure the hole does not face the prevailing wind or north. You should try to reduce wind/rain infiltration as much as possible.
- **Spacing:** Boxes, when part of a trail, should be placed at least 92m (300ft.) apart, as bluebirds are highly territorial. To reduce competition with tree swallows, boxes can be twinned and spaced at 6m (20ft).
- **Monitoring:** Bluebirds could potentially start nesting in April - it really depends on how warm the spring is and where you are located. Because of this, boxes should be checked or installed by March. Depending on how much time you have, boxes could be checked weekly. Checking during the egg laying stage usually will not scare away the adults if it's done carefully. It is important though to leave the box alone during the fledgling stage. An inspection at this time may cause the parents to abandon the nest.
- **Cleaning:** Typically boxes are cleaned after the first nesting, usually in July and at the end of the season in September. Recent studies though, have shown that it is not necessary to clean the boxes in mid season – you can wait until fall. During periods of heavy wet weather, it is beneficial to check the nest boxes. Experienced Blue birders will move young fledglings temporarily to replace soggy wet nests with dry grass. Fledgling losses due to hypothermia are high during these types of weather conditions.
- **Trails:** Boxes should be numbered, placed in accessible areas and spaced as mentioned above. It is a good idea to create a map that shows where the boxes are located. Numbered tags should be attached to each box (or painted). You may want to include the name of the group (or family) responsible for the bluebird trail on the tag.
- **Predators:** House sparrows and raccoons are the two primary predators of nesting boxes. A suitable predator guard will keep out raccoons. The 1-1/2" hole diameter will keep out Starlings. House sparrows pose a more serious problem. With their aggressive nature, they will kill the adult bluebirds and peck any eggs in the nest. To reduce the need to evict house sparrows, try and locate the nesting boxes at least 304m (1000ft.) from any barns or areas where house sparrows habitually nest.

- **Predator Guards:** To limit predators, all boxes should be mounted on 1-1/4" pipe poles or T posts - wood posts or trees should not be used. If a wooden post is used, a suitable length of sheet metal should be wrapped around the post. Boxes should never be attached to T posts which are part of a fence as it could be used a ladder by a raccoon. There are a number of different predator guards that can be attached to the pole below the box. Metal cone shaped guards are popular. Some birders coat the poles with grease to dissuade predators, another effective method of deterring predators. "Stove pipe" types are also effective if they have a minimum diameter of 6".

STANDARD TYPE EASTERN BLUEBIRD NEST BOX

MATERIAL

- All pcs cut are from 5/8" exterior plywood
- Predator Guard - one pc. 3/4 or 1" thick hardwood approx. 4" x 4"
- Bottom - one pc. 4-5/8 x 4-5/8
- Fixed Side - one pc. 4-5/8 x 11-1/2
- Front - one pc. 5-7/8 x 11-3/4
- Back - one pc. 5-7/8 x 18"
- Door - one pc. 4-5/8 x 11-1/2
- Roof - one pc. 7-3/4 x 9-3/4
- 2" ardox galvanized nails (approx. 22 per box) or #6 x 1-1/2 wood screws
- One of #8 x 1-1/4 pan head wood screw
- Exterior wood glue

PRE-ASSEMBLY

- On two opposite corners of the bottom pc., cut 3/8 x 3/8 mitre for drain holes.
- Drill a 1-1/2" diameter hole in the hardwood block (optional)
- Glue and screw the hardwood block to the front.
- Complete drilling the 1-1/2" diameter hole through the plywood.
- Cut five kerf cuts approx. 1/8 deep across the inside of the front pc. and two or three short kerf cuts on the outside of the front below the entrance hole.

METHOD OF ASSEMBLY

- Parts are numbered in the order of assembly.
- For added durability, glue and screw the nest box together.
- The door is supported by two nail "hinges". Locate the nails about 1-1/2" from the top to prevent splitting the plywood.
- To allow the door to swing open properly and to prevent excessive drafts, keep the gap at the top of the door at 1/8" (3mm).
- Use the screw as a door lock.
- With sand paper, remove all rough edges from the entrance hole.

Hint: put the door of the side opposite the prevailing wind in your area to reduce wind induced air leakage.

One sheet of 5/8" x 4ft x 8ft plywood will provide enough wood to make twelve nest boxes.

SLOPED ROOF TYPE OF EASTERN BLUEBIRD NEST BOX

MATERIAL

- All pcs are cut from 5/8" exterior plywood
- Bottom - one pc. 4-5/8 x 4-5/8
- Fixed Side - one pc. 4-5/8 x 11-1/2, cut at 72 degrees
- Front - one pc. 5-7/8 x 10 with 18° mitre cut
- Back - one pc. 5-7/8 x 18" with 18° mitre cut
- Door - one pc. 4-5/8 x 11-1/2 cut at 72 degrees
- Roof - one pc. 7-3/4 x 9-3/4
- 2" ardox galvanized nails (approx. 22 per box) or #6 x 1-1/2 wood screws
- One of #8 x 1-1/4 pan head wood screw
- Exterior wood glue

PRE-ASSEMBLY

- On two opposite corners of the bottom pc. Item 3, cut 3/8 x 3/8 mitre for drain holes.

- Drill a 1-1/2" dia. hole through the front.
- Cut five kerf cuts approx. 1/8 deep across the inside of the front pc. and two or three short kerf cuts on the outside of the front below the entrance hole.

METHOD OF ASSEMBLY

- Parts are numbered in the order of assembly.
- For added durability, glue and screw the nest box together.
- The door is supported by two nail "hinges". Locate the nails about 1" below and horizontal from the front corner of the nest box to prevent splitting the plywood.
- To allow the door to swing open properly and to prevent excessive drafts, keep the gap at the top of the door at 1/8" (3mm).
- Use the screw as a door lock.
- With sand paper, remove all rough edges from the entrance hole.

Hint: put the door of the side opposite the prevailing wind in your area to reduce wind induced air leakage.

One sheet of 5/8" x 4ft x 8ft plywood will provide enough wood to make twelve nest boxes.