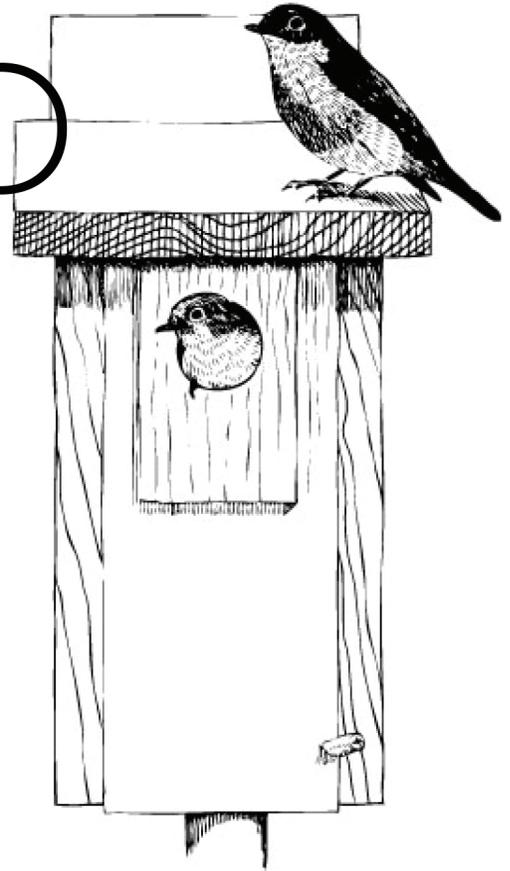


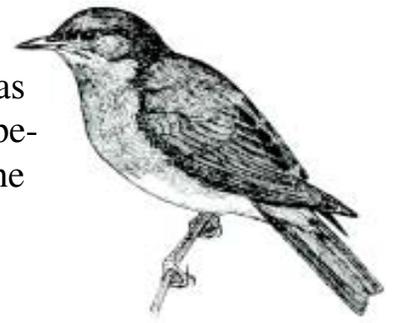
Eastern
BLUEBIRD

Monitoring Bluebird Nestboxes



Forest Resource Education Center
495 Don Connor Blvd., Jackson, New Jersey 08527
www.forestrycenter.nj.gov
forestrycenter@gmail.com

The Eastern Bluebird prefers to inhabit open fields or grassy areas scattered with trees; such as field edges, hedgerows, or roadsides. This species can be found anywhere east of the Rocky Mountains all the way to the Atlantic coast. Though bluebirds are not as prevalent in the north-east as they were in the early 1900's, they are beginning to make a comeback.



- Range** The Eastern Bluebird was once an abundant species along the east coast of the United States, but due to habitat loss and the introduction of aggressive, non-native birds, such as the House Sparrow, populations dwindled from the mid 1930's through the 1970's. However, since the 1970's, bluebird enthusiasts have been building and monitoring bluebird trails and the bluebird population has seen a steady increase in numbers. Bluebirds are now nesting successfully in areas where they had been missing for 25 years.
- Territory** The establishment of a territory is a gradual process, and begins when a mated pair or a single male arrives at the breeding grounds. Bluebirds will usually return to areas where they had bred previously and will search out nest boxes and natural cavities. When a male becomes attached to an area, he will begin to sing from high exposed perches and fly from perch to perch around the boundary of his territory. Bluebirds usually do not nest within 300 feet of each other, with an average territory size of between 2 and 3 acres. Both the male and female will defend their territory, with the males chasing other males away, and the females chasing away other females. A behavior referred to as "song dueling" sometimes occurs when two bluebird territories border each other. The two males from each respective territory will perch near one another and exchange songs alternately. Tree Swallows may nest in boxes in proximity to bluebirds and have been observed defending both nest boxes.
- Mating** When a lone male arrives at the breeding grounds and establishes a territory, he begins searching for a female by finding a suitable perch and letting out loud song bursts, sometimes up to 25 chirps per minute. When a male finally attracts a female to his territory, his actions change in order to convince her to pair with him. He does this by performing a series of different behaviors such as clinging to the outside of the box and repeatedly dipping his head and upper body in and out of the box. This may be followed by the male flying into the box and poking his head out of the entrance. He may fly out of the box and onto a nearby perch and begin to sing. He may simply fly out of the box, hover briefly, and return to the box. He may even fly to a different box or cavity. Courtship and pairing can take several days, and when it finally happens, the behavior of the birds changes yet again. They participate in "mate-feeding" where the male gets food and feeds it to the female. They will begin by building a nest, in preparation for raising young.
- Nest** Currently, most bluebirds nest in manmade nest boxes, due to lack of natural cavities. If no manmade boxes are available, bluebirds must find a naturally occurring cavity (i.e. a hollow tree) or a cavity left by another animal, such as a woodpecker. Though it is the male that initiates the home exploration, it is the female who makes the final decision on where the nest is built. She is also the one who does all of the nest building. Bluebird nests are constructed of grasses, pine needles, fine weed stalks, and occasionally fine rootlets. These materials are arranged inside the box, and the female will sit among them, pressing her breast against the sides to form the materials into a nest shape. This process is referred to as "molding the nest" A few days after the nest is complete the female will lay the eggs.

Incubation The female will begin to incubate the eggs only after she has laid the last egg in the clutch. This means that the initial eggs laid remain unattended and dormant for a few days. When incubation is begun, the female will sit on the eggs for intermittent periods during the day, and constantly at night, keeping the eggs at a temperature of at least 95°F. The male may sit on the eggs, but only for very short periods while the female is out feeding or preening. The length of incubation averages between 12-14 days.

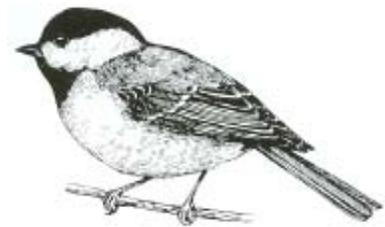
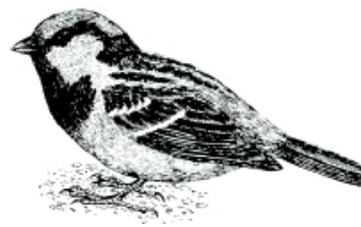
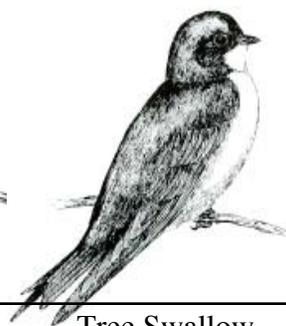
Hatchlings When the eggs hatch, the young are completely featherless. The mother will continue to sit, or brood, over the nestlings. After 5 days of brooding, the young will have already developed feathers, and will be able to stay warm simply by eating enough. It has been observed that the adults feed the nestlings approximately twice an hour. The young will remain in the nest for about 16 to 21 days. When the nestlings reach the age of 12 days old, the box should not be opened, for this may cause the birds to leave the nest early, leaving them open to easy predation.

Fledglings A fledgling is a bird that has left the nest, but is still dependent upon its parents for food. Once the young have left the nest, they will not return to it at all that season. They will fly to a nearby perch, where several may congregate, and call to their parents to feed them. After about 2 weeks, the fledglings will begin to follow the parents around, probably to gain experience in finding food. By 3 weeks of age, the fledglings will be able to gather food without much help. After about 5 weeks, the young are on their own. At this point, they are referred to as juvenile birds, because they still have their juvenile plumage. Adult status is not gained until the fall, when the birds first molt and they acquire the striking blue feathers for which they are named.

- Bluebirds nest and lay eggs from March - September
- Usually one egg a day is laid over three to four days
- One to six eggs are laid at a time
- Bluebirds can have up to three broods a season



Competition



House Wren	Tree Swallow	House Sparrow	Chickadee
This bird aggressively takes over bluebird boxes. They are known as bluebird predators. To keep House Wrens away from bluebirds, set up nest boxes at least 100 ft. from Wren habitats. Wrens prefer woody, brushy areas.	Although this bird competes with bluebirds for their nest boxes, they eat insects and are not an aggressive species. They can share the same territory if boxes are paired and set up 15 to 30 feet apart.	This bird is aggressive and will take over a box by chasing out or killing the nesting bluebirds. They have even been known to build nests right on top of baby bluebirds, suffocating them.	This bird likes to nest in cavities too, so it may be found in bluebird boxes. They won't cause harm to the bluebird, and therefore should be allowed to nest where they are found.

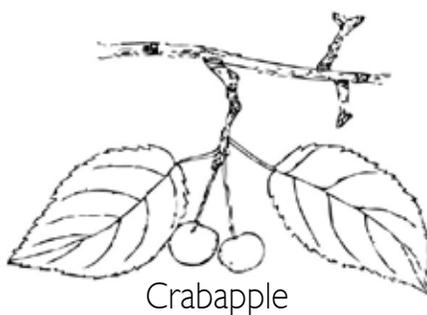
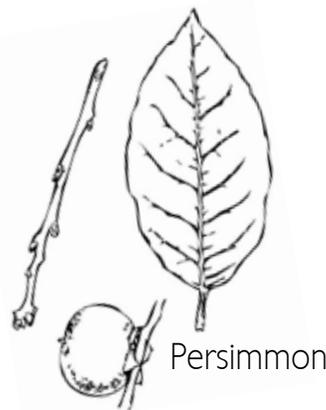
Trail Setup	<p>A Bluebird Trail consists of a series of bluebird boxes set up at about 300 feet apart (for territorial reasons). A trail can have just a few boxes, or, a multitude of boxes, if one has access to a large piece of suitable property. If there is only an open large lawn area with scattered trees or a hedgerow, one box may attract a pair of bluebirds. If you plan to build and monitor a bluebird trail you can use the following information to help ensure success. These adaptable birds will nest in a cavity 15 feet in the air or higher! But since monitoring a box that high would be difficult, mounting the box 4-5 feet off the ground is ideal.</p>
Monitoring	<p>A commitment is required to monitor a bluebird trail. There are many factors that can hinder bluebirds from successfully breeding in an area including bad weather, predation, disease, and insect infestation. Bluebird boxes are specifically designed to be opened without causing too much distress for the birds. Each box should be checked once a week, and no more (or unnecessary stress may be placed upon the birds), and a record should be kept of what is found in a box. This is an extremely important step, and dedication to monitoring the bluebird trail is essential.</p>
Location	<p>Bluebirds tend to gravitate to specific habitats, and it is important that the boxes are placed in areas that are suitable for bluebirds. Bluebirds prefer to nest in proximity to fields with low vegetation. A mowed lawn is ideal because the birds feed by landing on a perch and searching for crawling insects. If there are many large shrubs and high grasses, the bird will have trouble spotting a worthy meal. Position the nest boxes within 10-25 feet of scattered trees, a nearby hedgerow, or forest edge.</p>
Perches	<p>Perches are also very important. Dead tree limbs are great perches for bluebirds, but if there are none nearby the nest box, one can easily be made with wooden slats such as tomato stakes with a crossbar nailed to the top. Bluebirds are attracted to water, and a birdbath will attract any birds nearby. Keep the birdbath clean and situate it in an open area so the birds can watch for predators. It has been found that bluebirds will bathe towards the end of the day, and then carefully preen themselves before returning to the nest box for the night.</p>
Protection	<p>When mounting a bluebird nest box, provide the most protection from predators such as raccoons and snakes. The three basic types of poles recommended are: wooden posts, U shaped posts used for road signs, and metal pipes. Boxes can be mounted on trees and fence posts, but these methods are often discouraged, for predators can easily climb trees and raccoons are capable of walking along fences. Predator guards can and should be used for any type of mounting device. There are different type of predator guards, and what type to use is up to the individual.</p>
Predators	<p>Raccoons, cats, snakes, and birds of prey such as hawks will feed on bluebirds. Install nest boxes away from known hawk nesting sites. Set up predator baffles like the ones depicted above to keep the ground dwelling predators away as well as animals such as mice and flying squirrels, who may try to inhabit the boxes. Insects such as wasps and ants like to use bluebird boxes to build nests. They can harm the bluebirds inhabiting the box, so remove them if found. Blowflies lay their eggs in bluebird nests. The parasitic larvae will feed on the blood of young bluebirds. When checking the box, examine the nest for blowflies. Gently pick up the nest and shake or tap it softly. If infested, larvae will fall from the nest. Simply brush them out and replace the nest. If heavily infested, (50-100 larvae) remove the nest and build a new nest out of similar materials.</p>

Wintering

When the breeding season comes to an end, the birds are no longer attached to the breeding grounds. A breeding pair and the young from the broods will scavenge for food in groups. Through the fall, before freezing temperatures arrive, bluebirds' diets consist mainly of insects. When winter arrives, and the insect population dwindles, some bluebirds will migrate south, and others will actually remain near their breeding grounds, feeding entirely on berries. Those that remain in the cold regions will huddle together in large groups within cavities or nest boxes, or in specially made "roost boxes." A roost box is a large box with an opening at the bottom. A few perches are placed inside the box. The bluebirds will gather in these at nighttime to keep each other warm.

Bluebirds will winter over if there is enough food such as berries, nuts, and seeds. To enhance bluebird habitat, fill your bird feeder with raisins, suet, fruit, and hulled sunflower seeds and plant the listed plant species.

Winter Food



How to Monitor Begin by approaching the nest box and gently tapping on the side of the box. This will ensure that any adult birds (or any other animals) in the box have vacated. Using a screwdriver, open up the house and examine the contents of the box. Do not worry about causing stress to the birds. Bluebirds are used to human presence, and nest box monitoring will not overly disturb the birds. However, do not open the nest boxes when the nestlings are 12 days old. This could cause the birds to leave the nest early, leaving them vulnerable to easy predation. If one does not want to constantly disturb the nestlings, use a small dentist mirror to inspect the interior of the box.

Keeping track of what goes on in the bluebird nest boxes is a very important step of maintaining a Bluebird trail. There are many things to look for, from monitoring the health of the young to keeping the boxes free of competitors and parasites. Nest boxes should be checked at least once a week. Use the record to track your findings.

Bluebird
Nestbox
Record

Box # Year

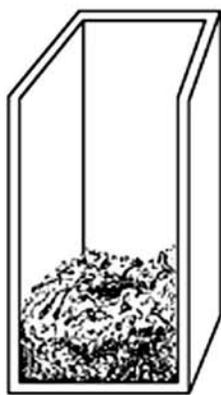
Date	Bluebirds Seen	Empty Box	Partial Nest	Complete Nest	# Eggs	# Young	# Fledged	Comments

Nest Identification & Recommendations



Tree Swallow

Fine grass nest lined with feathers. 4 to 7 white eggs, smaller than bluebird eggs. Set up a box for tree swallows 15-30 feet from bluebird boxes.



Carolina Chickadee

Small cup nest of moss & plant down lined with fine hair or animal fur. Parents may cover eggs with nest material. 5 to 8 white eggs speckled reddish brown. Leave nest in the box.



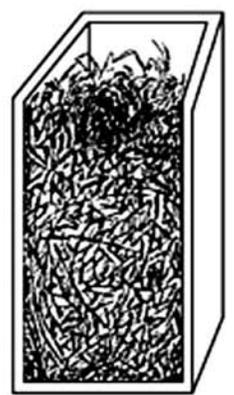
House Sparrow

Large canopy type nest made up of coarse grasses, feathers and trash. 5 to 6 gray white eggs speckled dark brown. Remove nest from the box.



Eastern Bluebird

Cup shaped nest made entirely of fine grasses and occasionally pine needles when available. 4 to 6 light blue eggs, occasionally white.



House Wren

Large deep tunnel made of twigs & spider egg cases leading to nest of fine grass material. 6 to 8 white/tan eggs speckled light brown. Move box away from wren habitat - woods & brush.