

Bluebird Nests Are Highly Successful

By LEO HOLLEIN



Eastern Bluebird fledglings on nest box. PHOTO BY LEO HOLLEIN

Monitoring nest boxes provides an excellent opportunity to assess the nesting success of birds – at least for cavity-nesting birds such as Eastern Bluebirds and Tree Swallows. This same assessment would be very hard to do for birds that use natural cup nests, due to the difficulty of locating and monitoring a significant number of nests.

A nesting (nest with eggs) is considered successful if at least one bird from a clutch of eggs hatches and leaves the nest box as a fledgling. Bluebird nest boxes were monitored over a ten-year period from 2004 to 2013. That covers over 650 nesting attempts in the Great Swamp National Wildlife Refuge. On average, less than 19 percent of the nestings fail to fledge a bluebird. Therefore, the nesting success rate exceeds an impressive 81 percent.

Figure 1 –
Southern
Flying
Squirrel in
bluebird
nest box.

PHOTO BY
LEO HOLLEIN



Another way of measuring bluebird nesting success is to compare the number of bluebird eggs that eventually fledge. For the same ten-year period, 84 percent of the bluebird eggs hatched, and once a bluebird egg hatches it has a 91 percent chance of fledging. The result is that 77 percent of the bluebird eggs fledged. As expected, this rate is lower than the overall nesting success rate of 81 percent, as not all eggs in a given clutch ultimately become fledglings.

The greatest reason for failure is nest predation, followed by nest abandonment. Abandonment means the eggs never hatch due to infertility, improper incubation, or death of a parent. Another failure is death of the entire clutch of hatchlings due to starvation, as well as to undetermined causes.

Weather is a significant factor in the variation of nesting success from year to year. The right combination of temperature and precipitation results in an abundant food supply for birds to feed their young – and for would-be nest predators, that only raid nest boxes if food is scarce. Extremely high nest box temperatures exceeding 100 degrees Fahrenheit could result in eggs overheating and not hatching. Bluebirds can warm their eggs to the proper brooding temperature, but they cannot cool their eggs if they become overheated. Inclement weather (extended periods of rain, mist, or high wind) can prevent adult bluebirds from obtaining enough food to keep their hatchlings from starving. (Hatchlings are eating machines – they need a constant supply of food to maintain their rapid development.)



Figure 2 – Bluebird nest box destroyed by Black Bear. PHOTO BY LEO HOLLEIN

MANY MAMMALIAN PREDATORS ROAM THE SWAMP

Predation rates vary from year to year, and remedial action is taken annually to reduce predation. Bluebird nests in the Great Swamp have been predated by mammalian, avian, and most probably reptilian predators – no snakes, however, have been caught in the act. The greatest threat in the Great Swamp is from mammalian predators – mice, Long-tailed Weasels, Southern Flying Squirrels, Raccoons, and Black Bears.

The use of metal support posts with close-fitting cylindrical predator guards has essentially eliminated the threat from mice and weasels, as long as vegetation is trimmed around the posts to prevent an alternative pathway to the nest box. Flying squirrels are deterred by locating the nest boxes far enough away from trees so they can't glide from a tree to a nest box. Flying squirrels (Figure 1) will also nest in bluebird boxes.

The robust 'coon population is the current primary predator. Raccoons forage near water and are a threat to boxes along waterways. In dry years when food is scarce they tend to raid more boxes. Raccoons climb atop the nest boxes and use their manual

dexterity to reach into the nest box hole to retrieve eggs or hatchlings. The addition of conical guards has deterred such predation, and a program to install more such guards in areas subject to Raccoon predation is ongoing.

There is no way to deter one mammalian predator – the Black Bear. Figure 2 is a picture of a nest box and post destroyed by a bear. Fortunately, bears have been infrequent predators – they have poor eyesight and evidently confuse the nest boxes with bird feeders that offer a substantial meal.

HOUSE WRENS DESTROY EGGS OF OTHER BIRDS

The diminutive House Wren and the non-native House Sparrow not only compete for the use of nest boxes but are also predators of bluebird nests. House Wren nestings are minimized by locating the nest



Figure 4 – Bluebird killed by House Sparrow. PHOTO BY LEO HOLLEIN

boxes over 50 feet from brush or the tree line, as these wrens like to nest close to cover. House Wrens will destroy eggs (Figure 3) in nest boxes by pecking them open and dropping them out of the nest box entrance hole. Then the wrens may nest in the box.

House Sparrows were introduced from Europe. They will nest in bluebird boxes and will displace nesting bluebirds and Tree Swallows from nest boxes. They may also kill hatchlings and adult bluebirds – as shown in Figure 4 – as well as Tree Swallows. House Sparrows only nest near buildings, especially those with livestock or birdfeeders that are a source of food. Boxes only used by House Sparrows are relocated.

No amnesty is given to these alien intruders. House Sparrows are not allowed to successfully breed in the bluebird boxes. If they do build a nest and lay eggs, they are permitted to brood their eggs for a week – then their eggs and nest are removed from the box. During the delay the female House Sparrow's hormones have changed, and she is not able to immediately lay another clutch of eggs. This procedure significantly delays and sometime eliminates renesting in the same box by the House Sparrows.

Figure 3 – Bluebird eggs pecked open by House Wren.

PHOTO BY LEO HOLLEIN




TREE SWALLOWS ARE LESS SUCCESSFUL NESTERS

Tree Swallows are common in the Great Swamp, and had over 700 nestings during the period. Nest boxes are paired (two boxes on their own posts about 20 feet apart) in the swamp, so both species can nest in the same area. Both are territorial nesters and will not tolerate their own species nesting close to them. About 60 percent of the box pairs host both Eastern Bluebird and Tree Swallow nests during a season.

Tree Swallow average nesting success is less than 74 percent versus 81 percent for bluebirds. Swallows had lower nesting success than bluebirds in nine of the last 10 years. They also had higher predation, abandonment, and other nest failure rates than for bluebirds. This difference reflects the different nesting strategies for the two species. Bluebirds have started nests from March through July and can raise two clutches in the Great Swamp. Their nesting success rate is not dependent on nest timing.

Tree Swallows only raise one clutch per year, and they only lay eggs in May or June. The optimum time for these swallows to lay eggs is in mid-May – they hatch at the end of May and early June – when the combination of a plentiful flying insect population and long daylight hours enables them to catch sufficient flying prey to feed their large clutches. If their nest is predated, they will quickly lay a new clutch in the same box, as their window for successful nesting is small. If they re-nest, the predator is likely to return for another meal. If their second nesting starts in June, they will have a difficult time feeding their young, as the swamp usually dries up later in the season and flying insect populations decline. If it is very dry, Tree Swallows may abandon their eggs, or their young may starve.

Tree Swallows compensate for their lower nesting success rate and single clutch by laying on average larger clutches (5-6 eggs) than Eastern Bluebirds (4-5 eggs). 

Leo Hollein, a resident of East Hanover, is also an NJ Audubon member and a long-time volunteer at the Great Swamp National Wildlife Refuge. He's involved in banding ducks, Canada Geese, Mourning Doves, and Screech Owls, as well as helping to monitor the Eastern Bluebird and Wood Duck boxes in the Great Swamp National Wildlife Refuge.

Visit Plainsboro Preserve's Eastern Bluebird nest box program



PHOTO BY MIKE HANNISIAN

THE GOOD, THE BAD, AND THE VULTURE

By MARGO D. BELLER

Scene 1: A morning in early September, north-central New Jersey. The sun hasn't been up long, and I am walking on a back road not far from my home in Morris Plains before it gets too hot and I have to go to work.

I am stopping to listen for birds, looking for activity. Maybe that small flock of bluebirds is still around. Is something up there with the chickadees?

I continue along. The road curves and meets up with another road near a bridge over a pond. Just past the pond more than two dozen Turkey Vultures are roosting in a huge sycamore tree.

I stand and watch as some of them spread their wings to dry in the morning dew, as wet cormorants do. Once in a while one of the vultures flies, circles a bit, and then comes back to the tree.

The road I am on leads to a county park, and people are running, walking their dogs, or driving past the tree. If they notice the vultures, they don't stop to look.

Scene 2: Another early morning, this one in February. It is 11 degrees, but the wind makes it feel like 4. I am once again walking before work, and this time I take a slightly different route that brings me along a side street in the general vicinity of that sycamore tree.

I notice vultures, mainly Black Vultures, on the roofs of some of the houses. Others are in bare backyard trees facing the sun. It is a quiet street – the school buses have been through, the parents are back in their houses getting ready for work, and I am the only one out here for the birds to notice.