

Tree Swallow Nesting Success at a Construction Site

Richard Graefe

A century ago, Neltje Blanchan, in the book *Bird Neighbors*, described the Tree Swallow as “more shy of the haunts of man ... than its cousins.” But as we have increasingly invaded their habitat, Tree Swallows have adapted. They now readily accept nest boxes and often nest close to human activity. In fact, for the 2000 and 2001 nesting seasons, Tree Swallows were the second most frequently reported species by participants in the Birdhouse Network program of the Cornell Laboratory of Ornithology (*Birdscope* 2002).

Just how tolerant of human activity can a species become? The 2001 nesting season put Tree Swallows to the test at my waterfront home on the shore of Narragansett Bay in North Kingstown, RI. Throughout the nesting season, the loud noise and intense human activity of a major construction and home renovation project left almost no area of my half-acre property undisturbed. Construction workers built a major addition, replaced all windows, replaced aluminum siding with cedar shingles, rebuilt the large deck, and reroofed the entire house. In the yard, they filled in two cesspools, added a new septic system, installed underground electrical service, and removed large overgrown shrubbery along the front of the house.

How well did Tree Swallows tolerate the activity? They used all six of my nest boxes, laid 39 eggs, hatched 30 of them, and fledged 22 young. They produced more fledglings than in any other year since I began monitoring my nest boxes in 1984 at my previous half-acre home site, also in North Kingstown. At my current home, where I have lived for seven years, the most young fledged in any past nesting season was 11, in the year 2000.

This article documents the disturbances that each nesting pair tolerated, the interactions each pair had with predators and nest-site competitors, and the positive effect that the intense human activity seemed to have in attracting swallows to the site and contributing to their nesting success. The experience of this Tree Swallow nesting colony has implications for optimal nest box placement for this species, especially in suburban settings, which are often heavily infested with nonnative House Sparrows and are prime habitat for House Wrens, a native nest-site competitor.

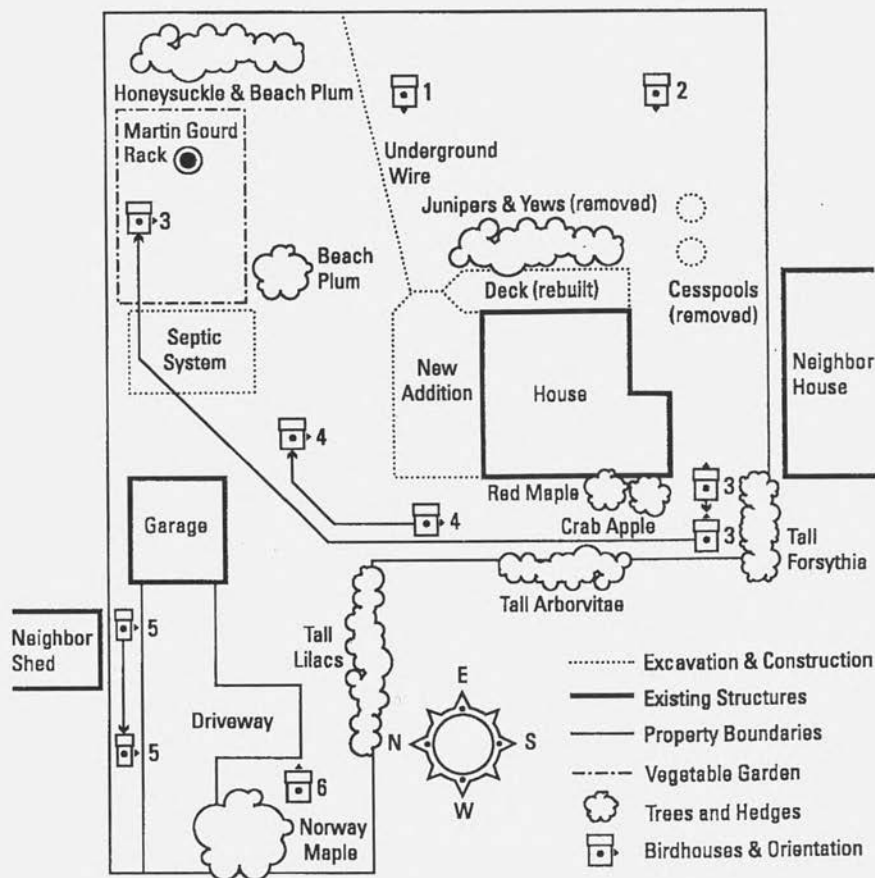
Pertinent Facts on the Species

Tree Swallows “oft[en] nest in loose colonies.” (Ehrlich et al. 1988). A pair will fiercely defend its nest site and nearby cavities, but eventually will allow other Tree Swallows to nest nearby. At my site, pairs have nested at a minimum of forty feet apart, but pairs have been observed nesting as close as seven feet apart in boxes with entrance holes facing in opposite directions (*Nestbox News* 2002). Once neighboring pairs are firmly established, they can cross each other's territory without provoking aggression, and all pairs in the colony will jointly mob hawks and other avian

predators. In areas with substantial Tree Swallow populations, each nesting pair spends much time and effort throughout the entire nesting cycle fending off interloping pairs that have been unable to find suitable cavities of their own.

Although intraspecific brood parasitism has been observed in Cliff Swallow colonies (Ehrlich et al. 1988), I have found nothing in the literature that documents such behavior among Tree Swallows. The behavior is rare enough that I have not observed it during my eighteen years of monitoring nest boxes – until this year at this colony, where it definitely occurred in one nest and probably occurred in a second.

Tree Swallows are best at defending their nests from nest-site competitors if the area surrounding their nest box is free of trees and shrubbery. They will repel attempted invasion by House Sparrows by attacking the sparrows in the air and at the roof or entrance hole of the nest box, and they will tussle with the invaders on the ground. They will not pursue a House Sparrow into shrubbery, however, or attempt to dislodge it once it succeeds in entering the nest box.



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The Colony Site

The site of this colony is my L-shaped half-acre home site fronting on Narragansett Bay to the east. (The driveway enters the property from the rear.) It is one of the biggest lots in a densely populated neighborhood of many small cottages and a few larger houses. It is within a quarter mile of a large cove and barrier beach, which contribute to excellent foraging opportunities for swallows. Tree Swallows are abundant in the area, and three other swallow species, including Purple Martins, visit the site each year (but Martins have not yet established a colony in the gourd rack I provide).

House Sparrows are a major problem for cavity-nesting species at this site. By year-round trapping I eliminate approximately 150 of these invaders each year, and in the drought year of 1999, when supplemental food and water were particularly attractive to them, I trapped 329!

Summary of the 2001 Nesting Season

In 2001 the noise and disturbance on the property appeared to attract the swallows and contribute to their nesting success by discouraging predators and nest-site competitors. Workmen were on site five or six days a week, and no nest failures due to competitors occurred on those days. The major losses for the season occurred on the three-day Memorial Day weekend, the longest period of time that no workmen were present. During that weekend and holiday, four eggs and seven young were lost to a House Wren and a House Sparrow.

A hawk presented new challenges to swallows at this site this season, but the intense human activity kept it away most of the time. Each winter at least one Sharp-Shinned Hawk frequents the site, but this was the first year I observed a Sharp-Shinned Hawk at the site during the swallow nesting season. I observed the hawk three times, once each in May, June, and July. All sightings were at times when workmen were not present (twice on weekends and once on a Friday evening). Songbirds at a neighbor's summer birdfeeder attracted the hawk, but it caused no observable losses to the nesting swallows, although it was a possible culprit in one nest abandonment, nesting attempt two in box 1.

It was the first year that I observed a House Wren exploring nesting opportunities at the site. (In one prior year, I observed House Wrens feeding fledged young on the property, but that nesting did not occur here.) This season's wren caused the loss of seven newly hatched young swallows late in the day on Memorial Day, but when construction activity resumed the next morning, the wren moved on and was not seen again.

The attractiveness of the site to swallows and some unexpected nesting successes attest to the positive influence of the noise and disturbance at the site. The following occurrences were particularly unusual during this nesting season. Pressure by interloping swallows was intense at all boxes, and for the first time intraspecific brood parasitism was documented at the site (definitely at box 2 and probably at box 5). The second-latest nesting start for Tree Swallows in all my years of nest monitoring

occurred this year (box 5). Swallows hatched young in three boxes that, due to location (boxes 3 and 6) or size (box 5), were poorly suited for this species. Two of these boxes successfully fledged young despite those disadvantages. An inexperienced first-time nester (the female in box 5) successfully fledged a full brood. A pair that twice proved to be ineffective nest defenders (box 2) eventually fledged almost a full brood.

Following are detailed descriptions of the disturbances, successes, and failures at each box. The boxes are identified by number on the site map. None of the birds were banded or otherwise distinguishable (except for one female's subadult plumage), so assumptions on the identity of individual birds are based primarily on behavioral observations.

Box 1

On May 3, two days before the first egg was laid, workmen excavated a trench for the underground electrical service, piling earth as high as the nest box and burying the bottom two feet of the nest box pole.

On May 8, the day when the third of five eggs was laid, workmen filled in the trench. On the Saturday of Memorial Day weekend, the day the eggs hatched, a male House Sparrow repeatedly attempted to enter the box, but the swallows successfully deflected him to box 2. On June 1 an electrician's panel truck parked all day five feet in front of the entrance hole.

On June 14 the entire brood fledged, and I cleaned out the box. On June 15 swallows that had begun building the day before in box 3 in the vegetable garden moved to this box, but abandoned the nest several days after the fourth and final egg was laid. Perhaps the Sharp-Shinned Hawk took one of the pair.

Box 2

A large backhoe parked several feet from the side of this box from April 27 to May 1 during nest-building.



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On Saturday, May 26 (Memorial Day weekend), this pair failed to fend off the male House Sparrow that had unsuccessfully attempted to invade box 1. I trapped the sparrow in the box and removed him. The same pair of swallows cautiously took control of the box again, but only after at least a forty-five minute interruption of incubation. By June 4 the swallows had relined the nest, covering the first clutch of four eggs. Meanwhile, workmen bulldozed shrubbery into a large pile twelve feet from the side of the box, where it remained for many days.

Again, this pair of swallows proved to be ineffective at defending the nest. Within a 48-hour period, June 4-6, four of the five eggs of the new clutch were laid, a feat that could occur only as a result of brood parasitism. At night on June 12, responding to a lightning strike at our neighbor's home, firefighters talked loudly and repeatedly within two or three feet of the box. All five eggs hatched, four young fledged on July 13, and I then found the remains of a nestling missing since July 1 on the ground below the box.

Box 3

After dark on April 20 I moved this box seven feet farther from the house to minimize disturbance from construction. The morning after the move, the swallows that had controlled the box for several days seemed unfazed by the change. This box, however, was still too close to shrubbery for swallows to defend it easily.

On May 27, the Sunday of Memorial Day weekend, I observed the clutch of six eggs in the midst of hatching, but the next day, at 6:30 p.m., I saw a House Wren leaving the box. He had emptied and scattered the contents of the nest. On the ground below the box were one unhatched egg and one dead nestling. On June 3 I cleaned out the box and moved it to the overgrown, weedy vegetable garden, where, on June 14, a new pair of swallows began nest-building for a day before switching on June 15 to newly vacated box 1.

Box 4

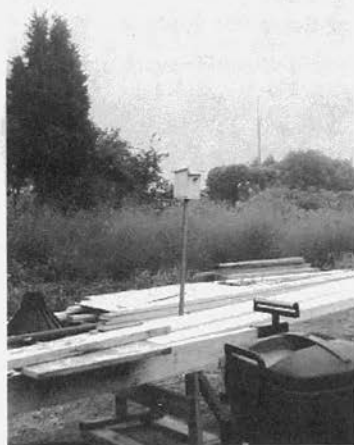
After dark on April 20 I moved this box away from the brink of the excavation for the foundation to a recently cleared location near the newly installed septic system. Early the next morning, the swallows that had controlled the box for several days readily moved to its new location.

This box was at the hub of activity for the new construction. The swallows tolerated ongoing intense activity and noise, including stacking and unstacking of lumber and frequent use of a power saw. One evening, I moved the table for the power saw several feet because the workmen had placed it so close to the box that a cat or other predator could have jumped from it to the box. The full clutch hatched, and all five young fledged on June 22.

Box 5

This deep box has only a 4 x 4-inch floor and an entrance hole five inches above the floor. Tree Swallows do best in a shallow box with at least a 5 x 5-inch floor. Only once before have swallows even attempted to use this box. On May 11, I moved this unoccupied box away from the contractor's large van that routinely parked immediately adjacent to the entrance hole.

On June 16 a first-year female, identifiable by her subadult plumage, began nest building. Only once before had I ever observed tree swallows beginning a nest this late.



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At dusk on June 21 the completed nest contained no eggs, but by 9:30 a.m. on June 23, three of the four eggs of this clutch had been laid. Three eggs laid within forty hours suggests brood parasitism. On June 25 the contractor's van parked all day with its side no more than four feet in front of the box. Despite this temporary disturbance and the ongoing noise of the compressor that ran daily in front of the garage to power the workmen's tools, this pair hatched the full clutch, and all young fledged on July 26.

Box 6

A large maple tree and tall lilac bushes nearby make this box difficult for swallows to defend from nest-site competitors and avian predators.

Only two of a brood of five young survived to fledge during the prior nesting season, probably due to predation by marauding Blue Jays observed on the roof of the box several times. Throughout the construction project, this area was the parking lot for the cars and trucks of the workmen, with vehicles sometimes as close as five feet to the entrance hole.


All six eggs hatched on May 27, the Saturday of Memorial Day weekend, but the next evening the House Wren that destroyed the brood in box 3 struck this box as well. At 7:20 p.m. I found some of the nest lining and two live nestlings on the ground below the box, one seriously injured and one very responsive. I opened the hinged top of the box and dropped the uninjured nestling next to the adult swallow that was brooding her remaining young. My nest check the next day, however, found only four nestlings. All four successfully fledged on June 15.

Implications for Nest Box Placement and Management

Conventional wisdom would suggest that less disturbance would mean greater nesting success. For many species, this is indeed correct. But, for Tree Swallows, especially in areas with large populations of competitors and predators, nest box placement close to human activity may well have distinct advantages.

Would you place a nest box for this species next to a dog pen, adjacent to a children's play area, in a busy boatyard, or close to a rifle range? Conventional wisdom would say no. My recommendation would be yes, give it a try. Be confident of the ability of Tree Swallows to withstand maximum disturbance. Also consider the possibility that the disturbance itself may make the site more attractive for Tree Swallows. Species such as Purple Martins and Killdeer are known to prefer sites close to human habitation, although not necessarily in areas of such intense human activity. Tree Swallows, however, may be developing an even stronger preference for disturbed sites.

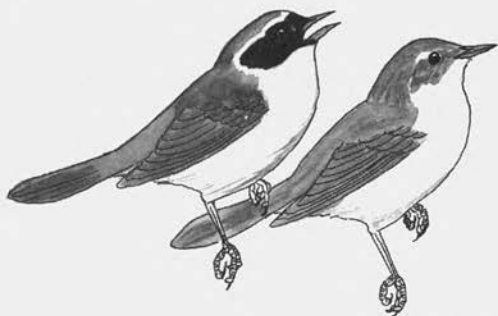
I would recommend that observers intensely monitor and manage nest boxes. Be aggressive in controlling House Sparrows. Use an array of baited traps and nest-box insert traps. Do not rely on nest removal alone. Do not be timid in nest box monitoring. Hinge-topped nest boxes with secure hooks provide a distinct advantage over front-opening boxes. Opening boxes from the top lets you monitor nests with less disturbance to brooding or incubating birds and lets you return fallen nestlings or remove dead nestlings more easily. Do not hesitate to move a box to a better location after swallows claim it but before nest-building begins. While Purple Martins will often abandon housing that is moved even slightly from one season to the next, Tree Swallows appear willing to move with their box for short distances within the same season, if the move occurs early enough in their nesting cycle. Perform all moves at night, after checking to be sure an adult swallow is not spending the night in the box.

My observations suggest that the major threats to Tree Swallow nesting success are nest-site competitors and predators, not noise, human disturbance nearby, or human interference at the nest box. Boxes in areas where noise and human activity discourage competitors and predators are highly attractive to this species, and the rate of nesting success can be above average at such sites. 

References

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Richard Graefe is a technical writer for American Power Conversion and lives in North Kingstown, RI. He is an avid birder in his spare time, is a volunteer ambassador for the Bird House Network of the Cornell Laboratory of Ornithology, and has contributed several brief articles in the past to Bird Observer's "Field Notes." He has hosted Tree Swallows (and other species) in his nest boxes since 1977 and monitored each nest since 1984. He has monitored the Tree Swallow colony at his present home since 1995. His son Christopher Graefe, a freelance graphic artist and computer interface designer at <www.bluewhalestudios.com>, provided the site map. Christopher resides in Pittsburgh, PA.



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