

NOTES ON BIRD PARASITES

Though incomplete, a record of the occurrence of parasites and of foot disease has been kept. A number of specimens of parasites were collected, and most of these were sent to the Bureau of Entomology, United States Department of Agriculture, for identification. An article dealing with parasites sent in by banders from various parts of the country has been prepared by Mr. Harold S. Peters, who has charge of this branch of investigations, and appears in this issue. Therefore no detailed summary of the results obtained at this station will be given here; a few scattered comments will suffice. In general the number of parasites noted, with the exception of the *Protocalliphora* and *Hippoboscid* flies, has been much smaller than that noted at my station at Summerville, South Carolina. Thus, in the three years under consideration 30 individuals of eleven species of birds have been noted as having ticks, 10 individuals of five species as having lice or eggs of lice, 11 individuals of six species as having chigger mites, one scaly leg mites, and one a flea. The number of birds actually infested with these parasites was undoubtedly greater than these figures would indicate. As regards *Hippoboscid* flies, 141 individuals of twelve species were noted as infested.

NOTES ON THE NESTING OF BLUEBIRDS¹

By SETH H. LOW

THE 1932 nesting season of the Bluebirds (*Sialia s. sialis*) on Cape Cod was so exceptionally successful that it deserves comment. The material on which these notes are based was gathered casually during the study of the nesting of the Tree Swallows. The territory, boxes, and conditions are the same as those described in the articles on the Tree Swallow.²

In 1930 ten nestling Bluebirds were banded, three in a tar-paper box at the Station and seven in holes in fence-posts near the North Eastham railroad station, which is about one and a half miles to the southeast. One adult was taken in a box; another was trapped at the Station.

¹Contribution No. 13 from the Austin Ornithological Research Station.

²Notes on the Breeding of the Tree Swallow by O. L. Austin and S. H. Low, *Bird-Banding*, Vol. III, No. 2, April, 1932, and an article in this issue, *ante*, page 76.

In 1931 both species were offered 98 wooden and 30 tar-paper boxes. The Tree Swallows, always victorious in any dispute with Bluebirds, took 60 of these. Although many houses were not utilized there were but six nests of Bluebirds. Of these, two, which contained full clutches of eggs, were deserted. The others produced seventeen young, all but one of which were banded. Only two adults were taken in the boxes, but six more were caught in traps and nets. There were other nests in natural sites, but from them only one young and one adult were obtained.

This past season 430 wooden and two dozen tar-paper boxes were erected on the Station grounds and 70 elsewhere, as described in the foregoing article. On making the first inspection of the boxes, May 14th, I was surprised to find six broods of young Bluebirds. These, however, were not the earliest broods, for a box five and a half miles to the north contained four nestlings two or three days old on May 5th.

On the Station grounds there were twenty nests of Bluebirds. Since the study of this species was a secondary matter, no particular effort was made to trap the adults owning these nests. However, one pair is known to have raised two broods. The first, consisting of five birds, hatched out May 14th and left the nest about the end of May. By June 28th the same parents had completed a clutch of four eggs in a box five hundred feet north of their first nest. Three young left this nest about the 27th of July.

In another case a male had two consecutive broods, each with a different female. The first brood flew about the last of May; the second hatched July 24th. Incidentally, the second nest was built on top of one used previously by Tree Swallows, which late in June had contained two young swallows. Both of these died, one while very young, the other when nearly full grown; and these I removed. A short time later the Bluebirds lined the dirty nest with grass and raised a successful brood.

Three more second broods were traced through females. In two instances the male in the first box was not captured; in the third instance the male of the second brood was not caught. One female had young late in May and again late in July. The other two pairs had completed the laying of second clutches two weeks after their first broods had flown.

A sixth second brood is traceable through a male, although the female of the first brood was not identified. In all six instances the second broods were raised in boxes in close proximity to the first ones.

In contrast to the high mortality of nestling Tree Swallows, that of the young Bluebirds was negligible. The following figures are not unquestionably exact, for some of the nests were not visited until they already contained young. Hence, in the absence of any evidence to the contrary, it is assumed that there were no more eggs laid than there were young and sterile eggs found at the time of discovery. The season's results may then be summed up as follows:

A total of 139 eggs were laid in 31 nests. Not one nest was deserted, and only one (it contained but a single egg) was destroyed. The hatching of 130 eggs constituted 93.5 per cent of the total laid. But one entire brood died, and that from an undetermined cause. It is noteworthy that *Protocalliphora* were not found in the nests. Five young disappeared between the time of hatching and the time of banding. Although only one dead bird was found, it is believed that the missing nestlings must have died or been killed and carried off. The total mortality was but ten, or 7.7 per cent of the hatch. Allowing for the possible errors, the reproductive efficiency of the Bluebirds was approximately 85 per cent.

Although little was done in the way of watching the nesting habits and the boxes were visited too infrequently to determine accurately the duration of the periods of incubation and adolescence, the former appeared to be from thirteen to fifteen days, the latter fifteen to nineteen days.

Only three Bluebirds of the thirty-eight banded in 1930 and 1931 returned. The only adult banded in 1930, a female, returned in 1931, to breed again about a mile from its first site. One male and a female of the adults captured in traps in 1931 nested this season in the boxes at the Station. The only recovery has been one of the 1931 nestlings. This bird left its nest June 30th; repeated in a trap a mile away on August 23d, and was "found dead" at Merry Hill, North Carolina, by V. H. Lee on December 18, 1931.

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