

BLUEBIRD STUDIES ON CAPE COD¹

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THIS article is a supplement to my preceding one on Tree Swallows.² All that was said there about the nesting-boxes and substations applies to the Bluebirds. Here again, much material was lost, as very few of the early nests were trapped. Most of the late and second broods were trapped, so, although I have no data on second and possible third broods, I know the identity of most of the adults breeding at the main Station.

The following table gives a complete summary of the bandings and returns of Bluebirds obtained on outer Cape Cod, Massachusetts. The few bandings and returns are not sufficient to figure any survival percentages, but two points are notable—that there are no two-year returns and that thirty-six and two-thirds per cent of the 1932 adults were recaptured in 1933 as returns. This percentage is only slightly lower than that obtained for the Tree Swallow.

TABLE I

<i>Banded as Adults</i>				<i>Banded as Nestlings</i>				
1930.....	2	1	0	0	10	0	0	0
1931.....	9	2	0	0	19	0	0	
1932.....	30	11			113	3		
1933.....	29				146			

CHOICE OF NEST-SITES BY RETURNS

Not only have a number of nesting-sites at the main Station been favored by Bluebirds both this and last season, but at these sites six boxes were used both seasons. However, not a single return was caught in its last season's box. The approximate distances at which the returns at the Station nested from their previous sites are as follows: 525, 570, 600, 728, 800, 900, and 3800 feet. The closest a Bluebird has come to its former site is 76 feet to an adjoining box at substation A. Only once during the two past seasons has a bird used the same box for a second brood, but at substations this has happened six times. These facts on examination prove to be consistent. The area of each substation is far smaller than that of the main Station. The number of spots favorable to Bluebirds are, therefore, proportionately fewer. These areas have fewer boxes of which a higher percentage is occupied by Tree Swallows.

¹ Contribution No. 17 from the Austin Ornithological Research Station.
² See article in this issue, ante, page 24.

MATING

In 1932 eight pairs of adults were banded at the Station. From two pairs neither bird returned. One adult from each of five pairs was captured nesting with a new mate. As it cannot be proved that each of the former mates were alive, it cannot be concluded that these birds were inconstant. Both adults did return from the eighth pair, but each took a new mate. No conclusions on mating constancy can be drawn from this one case.

RETURN OF NESTLINGS

Table I shows that, of 142 nestlings, 4 (2.8 per cent) returned the following year. Two of these were males from the same brood: one nested 2800 feet and the other 2200 feet from their birthplace. The third, a female, nested about 2000 feet from her birthplace. The fourth was found dead early in July over one and a half miles from where it was reared. Thus there is an apparent tendency in Bluebirds to return to the general neighborhood of their birth, but it is improbable that all of the other 138 nestlings probably had not died. Therefore, it is reasonable to suppose some have spread beyond the area covered by the substations.

PERSISTENCE OF THE FAMILY GROUP

In the late summer and fall Bluebirds are frequently taken in the grain traps and nets at the Station. They are caught generally in small groups, some of which prove to be composed of siblings. Three out of five nestlings banded July 10, 1932, were caught in two adjoining traps on September 1, 1932. All three young from another box, banded July 25, 1932, flew into the same net on October 4, 1932. In both of the preceding cases the birds were within a half-mile of where they were reared. On September 12, 1933, three out of five nestlings entered a trap within 225 feet of the box from which they had flown late in May. In addition, I have four cases of two out of four siblings appearing together a month or two after leaving the nest. Thus the young of a brood show a tendency to remain together in the vicinity of their birthplace until it is time to migrate.

To date I have not taken any of the parents with their young or the siblings of the two broods of the same parents together, but Mr. A. W. Higgins, of Rock, Massachusetts, has published³ a record, based on repeats, sight observations, and

³ *Bull. of the Northeastern Bird-Banding Association*, Vol. I, No. 1, pp. 2-4, Jan., 1925.

circumstantial evidence, of two adults and their two broods of young returning together to their breeding territory on September 15th after a month's absence.

THE 1933 SEASON

Table II gives a summary and comparison of the 1932 and 1933 nesting seasons. At the main Station there were 28 nests, a substantial increase over 1932. Owing to the lack of early trapping it is not known how many of these were second nestings. However, fifteen individual females were taken on nests. Nine of them were associated with one nest each. Five had second broods, and one had two successful clutches and one unsuccessful clutch. This leaves six nests unaccounted for, but they were probably the second nests of six of the nine females which were identified with only one nest apiece. Two nests containing a total of eight eggs were deserted, as against nine in 1932. Nine eggs were destroyed and twelve failed to hatch, as against one and seven in 1932. One brood of four died, and another of five was wiped out apparently by a mammal. Five other young died or disappeared from two nests.

The data on substations are incomplete. The increase in nests is due to new substations. There was a good lay of eggs but six nests containing twenty-two eggs were deserted and eleven eggs in four nests destroyed. These losses occurred chiefly at two new substations and were attributable to English Sparrows. Four eggs failed to hatch as opposed to one in 1932. There was no destruction or desertion at the substations in 1932.

TABLE II

	<i>Nests</i>	<i>Eggs</i>	<i>Hatch Per cent</i>	<i>Mortality Per cent</i>	<i>Fledged Per cent</i>	<i>Efficiency Per cent</i>
Main station:						
1932	20	91	83(91.2)	5(6.0)	78(94.0)	85.7
1933	28	128	99(77.3)	14(14.1)	85(85.9)	66.4
Sub-stations:						
1932	11	48	47(97.9)	5(10.6)	42(89.4)	87.5
1933	27	110	73(66.4)	4(5.5)	69(94.5)	62.7
Totals:						
1932	31	139	130(93.5)	10(7.7)	120(92.3)	86.3
1933	55	238	172(72.3)	18(10.5)	154(89.5)	64.6

The mortality and fledged percentages were practically the same both years for both the main station and the substations. The drop in efficiency is due to the loss of eggs through destruction and desertion. However, the one hundred and fifty-four nestlings raised in the boxes represents an increase of 28.3 per cent over 1932.

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