

## OBSERVATIONS AND BANDING NOTES ON THE BANK SWALLOW—III.

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Two earlier papers<sup>1</sup> point out the conditions associated with and the major results obtained from banding studies of the Bank Swallow carried on by the writer and Mrs. Stoner in the Lake Okoboji region, northwestern Iowa, during the summers of 1923 to 1925 inclusive. The present summary of facts is concerned with our findings from further studies conducted in 1926.

Matters over which we had no control permitted only about three weeks' residence at the Iowa Lakeside Laboratory which served as our base. Between July 5 and July 21, 248 Bank Swallows were banded; of these 62 were adult and 186 were immature birds. Fourteen sub-stations were investigated of which all but four had been worked in former years. Indeed, these four small colonies which occupied roadside cuts had not been established until the summer of 1926 although all were within a mile of the nearest previously worked colony.

Practically all our observations and conclusions of preceding summers were substantiated while a few additional facts regarding the habits and behavior of these birds were obtained.

*General Remarks.* The number of Bank Swallows nesting in the region seemed to be about the same as usual. In some colonies as early as July 6, most of the young birds of the first brood were able to fly and apparently numbers of adults were mating for the second time. In other colonies where, no doubt, incubation was more or less frequently interrupted by workmen in the gravel pits, young were in the nests. However, I believe that this date represents fairly accurately the normal time of leaving the nest of first brood young and the beginning of the second mating period of the season. We found nestlings two or three days old as well as incubating birds on July 20.

One point of interest in connection with the incubating birds that we secured for banding was that the center of the lower breast

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<sup>1</sup> The Auk, XLII, No. 1, 1925, 86-94 and XLIII, No. 2, 1926, 198-213.

of such birds was almost devoid of feathers so that a considerable area of bare skin was in contact with the eggs during incubation. An examination of breasts of birds of the year revealed a more thickly feathered condition of these parts.

Although Bank Swallows as a rule are fairly clean and harbor few parasites, I took a bird louse from an adult banded on July 19. The specimen was determined at the United States National Museum as *Myrsidea dissimile* Kellogg. This is the first time that I have found mallophagans on these birds although several other types of parasites have been reported previously (Auk, 1926, pp. 207-208).

One item of interest regarding the food habits of Bank Swallows was had from an incubating bird which, at the time of capture, carried in its bill a crushed two-winged fly (Diptera) and a small cicadellid (Homoptera).

Additions to our list of inhabitants of Bank Swallow burrows other than the birds themselves include the ground beetle *Harpalus pennsylvanicus* and the prairie harvest mouse *Reithrodontomys megalotis dychei*, an entire family of the latter having been discovered in one burrow.

*Repeats.* Recoveries of birds banded in the summer of 1926 are termed "Repeats" and of these three were adults while seventeen were immature birds. The following table summarizes our findings.

TABLE OF REPEATS

With one exception all were recovered in the same colony in which they were banded.

<i>No. and Age</i>	<i>Date and Locality of Banding</i>	<i>Date of Recovery</i>
36355A Imm.	July 7; 2 miles E. Spirit Lake	July 9
36326A Ad.	" 6; 1 " S.E. Arnolds Park	" 10; incubating
36369A "	" 8; 1 " " "	" "
36378A Juv.	" " " " " " "	" 14
36379A "	" " " " " " "	" "
36380A "	" " " " " " "	" "
36384A "	" " " " " " "	" "
36429A Ad.	" 10; " " " " "	" 15
61045A Imm.	" 14; 4 " W. Spirit Lake	" 14
61047A "	" " " " " " "	" 15
61048A "	" " " " " " "	" "
61049A "	" " " " " " "	" "

TABLE OF REPEATS—*Continued.*

No. and Age	Date and Locality of Banding	Date of Recovery
61046A Imm.	July 14; 4 miles W. Spirit Lake	July 15
61066A "	" " 3½" " " "	" "
61070A "	" " " " " " "	" " and 17
61072A "	" " " " " " "	" " " "
61073A "	" " " " " " "	" "
165401 "	" " " " " " "	" " and 17
61016A Fledg.	" 12; 1 " S.W. Milford	" 19
61017A "	" " " " " " "	" "

*Remarks on the Table.* All the birds mentioned in the foregoing table except Immature No. 61045A were recovered in the colonies where they were originally taken. This bird, one of a family of three, was banded at 8.05 A.M. Two hours and thirty-five minutes later it was recovered from a burrow in a colony a half-mile from the one in which it was first captured.

Twenty-four hours after banding Immature Nos. 61047A, 61048A and 61049A they were recovered together in the same gravel pit but from a different burrow.

Fledgling No. 61017A was recovered from a burrow adjacent to the original one seven days after it was banded.

From the above and other data at hand it seems evident that young birds, once they are able to fly, change their abodes frequently often wandering some distance from the parental burrow on the first flight. After flight ability is attained, young from two or more broods may temporarily inhabit a burrow in which none, or one or more of them was reared. That is to say, family ties are likely to be broken after the first flight and a given brood loses its identity.

*Returns.* No less than 1424 young and adult Bank Swallows have been banded in this region since 1923. From the 1176 birds banded up to the beginning of the 1926 season, fourteen individuals have been recovered as "Returns." One of the birds banded in 1923 was recovered in 1924;<sup>1</sup> five of those banded in 1924 were recovered in 1925,<sup>2</sup> while in 1926, eight individuals from 1924 and 1925 bandings were recovered. These latter records, together

<sup>1</sup> The Auk, XLIII, No. 2, 1926, 201-202.

<sup>2</sup> *Ibid.*, 209-210.

with certain details relating to them seem worthy of further consideration.

No. 244983. Juvenal; fully fledged; one of a family of five; banded July 5, 1924 in a gravel pit two miles east of the town of Spirit Lake. Recovered, July 10, 1926 in a gravel pit one mile southeast of Arnolds Park and about seven miles distant from the place in which it was originally banded. The bird was nesting on the date of its recovery.

No. 24692A. Juvenal; able to fly; one of a family of six; banded July 9, 1925 in a gravel pit one mile southeast of Arnolds Park. Recovered July 14, 1926 in an adjoining pit about fifty yards from the original banding locality. The bird was incubating on the day of recovery.

No. 24766A. Juvenal; able to fly; one of a family of five; banded July 10, 1925 in a gravel pit one mile southeast of Arnolds Park. Recovered July 14, 1926 in a gravel pit one mile southwest of Milford and about three miles from the place of original banding. Just previous to recovery the bird had flown into a burrow where it was incubating what was possibly a second clutch of eggs for the season.

No. 8173A. Adult; another adult bird together with a family of young in the nest; banded June 22, 1925 in a gravel pit two miles east of Spirit Lake. Found dead July 9, 1926 in a gravel pit about 150 yards north of the one from which it was originally banded. The body of the bird was partly decayed, three or four days probably having elapsed since death which may have been caused by injuries sustained in the falling away of the face of the bank. This seems to be a prolific source of destruction among these birds. The bird had returned, possibly to breed, to approximately the same place in which it had reared a brood the preceding season.

No. 8545A. Adult; taken from a burrow occupied also by another unbanded adult in a roadside gravel pit one mile west of Milford, June 25, 1925. Recovered in a gravel pit three-fourths of a mile southwest of the place of original banding on July 19, 1926. Incubating at time of recovery.

No. 8588A. Fledgling; one of a family of five occupying a burrow in a gravel pit two miles east of Spirit Lake; banded June 27, 1925. Recovered July 14, 1926 from a burrow in a roadside cut

about five miles west of Spirit Lake. Bird incubating on date of recovery.

No. 24535A. Fledgling; one of a family of five occupying a burrow in a gravel pit three miles northeast of Spirit Lake; banded July 2, 1925. Recovered as a breeding bird in a gravel pit one mile southeast of Arnolds Park and about nine miles distant from the place of original banding.

No. 24736A. Fledgling; one of a family of five occupying a burrow in a gravel pit one mile southeast of Arnolds Park; banded July 9, 1925. This bird was recovered from the same burrow along with three others of the family on July 17 of the same year. On July 8, 1926 it was again recovered in a gravel pit about fifty yards north of the one in which it was reared; on this occasion it had a family of young in the nest. Both bird and band were in excellent condition.

*Remarks on Returns.* A little more than 1% of all the birds banded have furnished returns. Of the total number of returns thus far obtained (14), only five were banded as adults, and of these one was recovered dead. These facts suggest a high mortality rate in this species.

Further, it seems that very few birds return to breed in the *exact* locality in which they were reared although a somewhat greater proportion returns to the *general* region. In only one case has a return bird been taken in the burrow from which it was banded.

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