

27. *Geothlypis trichas trichas*. MARYLAND YELLOW-THROAT.—On July 14, a short distance inland from the western side of Coacoachou Bay, I heard four of this species in song, and saw one clearly at close range. This is slightly farther east than Old Romaine, where the species has been recorded by Townsend.¹

28. *Sitta canadensis*. RED-BREASTED NUTHATCH.—This species was observed in the Mingan Islands region on May 9 and 29, June 25, August 21 and 27, and September 1, one individual being noted on each of these dates. At Harrington it was observed as follows: August 15 (1), 17 (1), 18 (3) and 19 (3). Mr. Allen L. Moses told me that several birds of this species came aboard the S. S. "Labrador" on August 18, between Mutton Bay and Bonne Esperance. In view of these and previous observations it would appear to be well established that the Red-breasted Nuthatch is a regular and not uncommon summer resident in the southern part of the Labrador peninsula.

As there are almost no trees on the Harrington Islands, the Red-breasted Nuthatches there commonly seek food about wood-piles, buildings, and fences and on the ground. On August 19 I saw one perched on the bare solid rock, from which it made sallies into the air above it after insects, much as a Flycatcher would do.

29. *Regulus satrapa satrapa*. GOLDEN-CROWNED KINGLET.—A female was distinctly seen by me near Esquimaux Point on June 4.

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OBSERVATIONS AND BANDING NOTES ON THE BANK SWALLOW.

BY DAYTON STONER.

Plate VIII.

OWING not only to the wide-spread interest in and popularity of bird banding but also to the fact that this field of endeavor seems destined to throw much light upon many activities of migratory birds, suitable districts where such work can be carried on are being continually selected for this purpose. In this connection it has seemed to the writer that the establishment of a bird banding and trapping station in some favorable locality in Iowa

¹ 'Auk,' Vol. XXXIV, No. 2, p. 139.

where the work might be continued on an intensive and extensive scale season after season would be highly desirable. Probably no place in the State is better adapted to such efforts than the region about the Iowa Lakeside Laboratory in Dickinson County, northwestern Iowa.

Therefore, it was with a considerable degree of satisfaction that, during the early summer of 1923, the work was inaugurated here and, it is hoped, will be carried forward with ever-increasing enthusiasm and with far-reaching results.

The Laboratory grounds themselves, at present consisting of approximately five acres, and located on Miller's Bay on the west shore of West Okoboji Lake, furnish a variety of habitats for nesting birds while the immediate region offers additional attractive and diversified nesting sites for many species. Deep woods, marshes, open fields, partially cleared areas, the lake shores, cultivated fields, and roadside gravel pits, all offer a wealth of possibilities for birds when the important and serious business of nidification and rearing of the young occupies their full attention.

Immediately upon our arrival at the Laboratory on June 18, Mrs. Stoner and the writer set out to discover as many nests as possible. The occupants, both adults and young, were to be the prospective wearers of the legend-bearing aluminum bands which are furnished by the United States Biological Survey. We were fortunate in having a motor car at our disposal and by this means we could go quickly and easily from one nesting locality to another and so cover a greater amount of territory more expeditiously than would otherwise have been the case. The work was continued without intermission until July 16, during which time 242 individuals, both adults and young, representing 19 species, were banded.

Of the total number of birds banded, Bank Swallows (*Riparia riparia*) formed a little more than 31 per cent. Although notes and incidental observations were made upon practically all the species banded, it seems best to withhold general comment until at least another season's work has been completed. However, since special attention was given to the Bank Swallow, some items of seemingly worth-while interest concerning this species

have been gathered from our efforts of 1923 and they are here brought together for consideration.

While it is perhaps true that this bird is not more abundant than some other species in the region its characteristic habit of nesting in more or less readily accessible colonies gives it a conspicuous place in the bird fauna about the lake. Owing very largely to this proclivity the possibilities were great for finding a considerable number of nests, and consequently, at this season, of adults and young as well. Accordingly, our records for the summer show that 19 adults and 57 immature birds were fitted with bands. The latter represent the occupants of 14 nests, thus giving an average of about four young to each nest. Four of the nests contained five young each; the remaining nests each contained less than five young.

NATURE OF NESTING SITES.

From the standpoint of automobile roads Dickinson county is fortunate in possessing many outcrops of water-laid gravel of Wisconsin age and pits of considerable size are of frequent occurrence where this material is hauled away for use in road construction and other building work.

Bank Swallows and sometimes also Tree Swallows find suitable places for constructing nests in the sheer walls of some of these excavations although it does not necessarily follow that the largest wall exposure attracts the greatest number of birds. The largest gravel pit that was investigated—it was about 35 feet deep and extended a little over 100 yards in the form of a semi-circle—attracted only about a dozen pairs of Bank Swallows.

The largest colony in which work was done was located in a roadside gravel pit a half-mile southeast of the Laboratory but individuals from four other colonies of smaller size were banded during the summer.

Sometimes the banks of a small cut along the road appear to offer possibilities for these birds and here from two to three or a half dozen families may excavate their burrows in the more or less sandy or gravelly soil. Two such colonies were investigated.

Another small colony nesting in the black sandy loam of the

banks of the Little Sioux river one and one-half miles west of Milford was visited and some of its members were banded. Numerous other colonies of varying sizes were observed but conditions in only five were actually investigated.

The face of the most thickly populated gravel pit—the one a half-mile southeast of the Laboratory—extended in a semi-circle for 100 feet. The north end of the exposed face was three feet high and the opposite end was about eight feet high while the greatest height, in that portion of the pit from which the most gravel had been removed, was about twelve feet. This part of the pit was about 100 feet from the main highway. It was here that most of our work on this species was done and as this place illustrates typical conditions the following discussion is based largely on our observations of this colony.

On June 19 the face of this pit bore 163 burrows in various stages of completion. Some of the burrows were barely begun, other fully completed ones were three feet or more in depth. A few burrows were only about twenty inches from the top of the pit; most were more than three feet from the bottom. Already nests had been built in some, while in others nest construction had not been started. We slightly enlarged the diameter of one burrow and the nest was found to contain four eggs. After making our observations the burrow was not filled in to its original size but was left in its enlarged condition. Probably on this account the nest was abandoned. However, in all burrows which we subsequently enlarged, effort was made to restore them as nearly as possible to their original size and shape by the addition of moist sand. Burrows treated in this way were never abandoned.

On June 22 the number of burrows in the pit had been increased to 186 and apparently the birds were augmenting the number daily.

As we sat quietly in the car parked at the roadside opposite the gravel pit the members of the colony went about their business of carrying away sand and bringing grass and feathers for the nests, apparently undisturbed. However, when we alighted and began investigating the pit they left the burrows and flew around above our heads uttering continually their characteristic weak twitter and occasionally alighting on the nearby telephone wires;

some time elapsed before they could reassure themselves that it was safe for them to return.

BURROW EXCAVATION.

This activity was taken part in by both male and female and, having selected a site, excavation began. Often the birds seemed to rest partly on pebbles which projected from the wall of the bank, but the long slender claws are most effective clinging organs. Thus supported, the outspread tail aiding in this, a small concavity was soon formed as the bird pecked the sand and gravel throwing some of the bits out by a rapid side-to-side movement of the head.

At intervals a slight fluttering of the wings occurred as if the burrower were dusting away the excavated material which had accumulated at its feet. As the hole became deeper some of the sand and pebbles were carried away in the bill. Excavation was carried on for a variable length of time but I believe that the depth of the burrow and hence the time spent in its excavation may be, to some extent at least, correlated with the condition of the reproductive organs. That is, if the eggs are not fully developed and the digging is not difficult, the burrow may extend back into the bank for three feet or more. If, on the other hand, ovulation is well along the burrow is likely to be shorter.

On June 20 two burrows were opened; one, two feet deep and apparently unfinished contained no nest; the other, in which a nest had already been constructed, was but eighteen inches deep and extended a few inches back of the nest. Other tunnels which were examined later ended in an enlarged chamber in which the nest was placed, while in some no appreciable terminal or subterminal enlargement of the burrow was apparent.

Frequent falling away of the face of the bank due to rains and working of the pit by laborers necessitated almost constant excavation by these industrious bank dwellers during the first part of the season in order that the burrows be kept at a proper depth. Later on, after actual nidification had been completed, further excavation was discontinued even though portions of the bank fell away, resulting at least in more or less exposure of the nest to sunlight. Sometimes nests were destroyed in this manner.

Practically all the burrows of a Bank Swallow colony on the Little Sioux river that was visited on July 12 had been excavated to a greater depth than those in the gravel pit. Possibly the easier digging in the black loam and sand there was responsible for this condition. One burrow that had been excavated by Bank Swallows, presumably, and was among the lot occupied by the members of this colony, contained four fledgling House Sparrows in good condition and about ready to leave the nest. The rather unusual abode for this all too abundant pest again illustrates the resourcefulness and adaptability which, in large measure, account for the success of the species. It would be of interest to know if these birds had driven out the rightful occupants of the burrow after the latter had performed the excavation and had taken up their abode therein.

NEST CONSTRUCTION.

This activity also extended over quite a period of time. Birds carrying nest materials were seen on our first visit to the pit on June 19. On June 23, both burrows and nests were under construction, though several of the latter now contained eggs. Evidently housekeeping was beginning in earnest. The nests were placed at varying distances from the mouths of the burrows, sometimes barely a foot, while again they could scarcely be seen even with the aid of a pocket-flashlight. They were composed very largely of grass with usually a few feathers for a lining. All the feathers seemed to be those from domestic fowls. Curiously enough none but white ones were ever discovered in the nests and although we made some effort to find out if white fowls were more plentiful in the vicinity than colored ones our investigations did not prove this to be true. Do the Bank Swallows have a peculiar failing for white feathers and so go to some pains to select them for lining their domiciles?

By June 28, most of the nests in the pit had been completed and egg-laying and incubation now made up the principal business of the birds.

BANDING OPERATIONS.

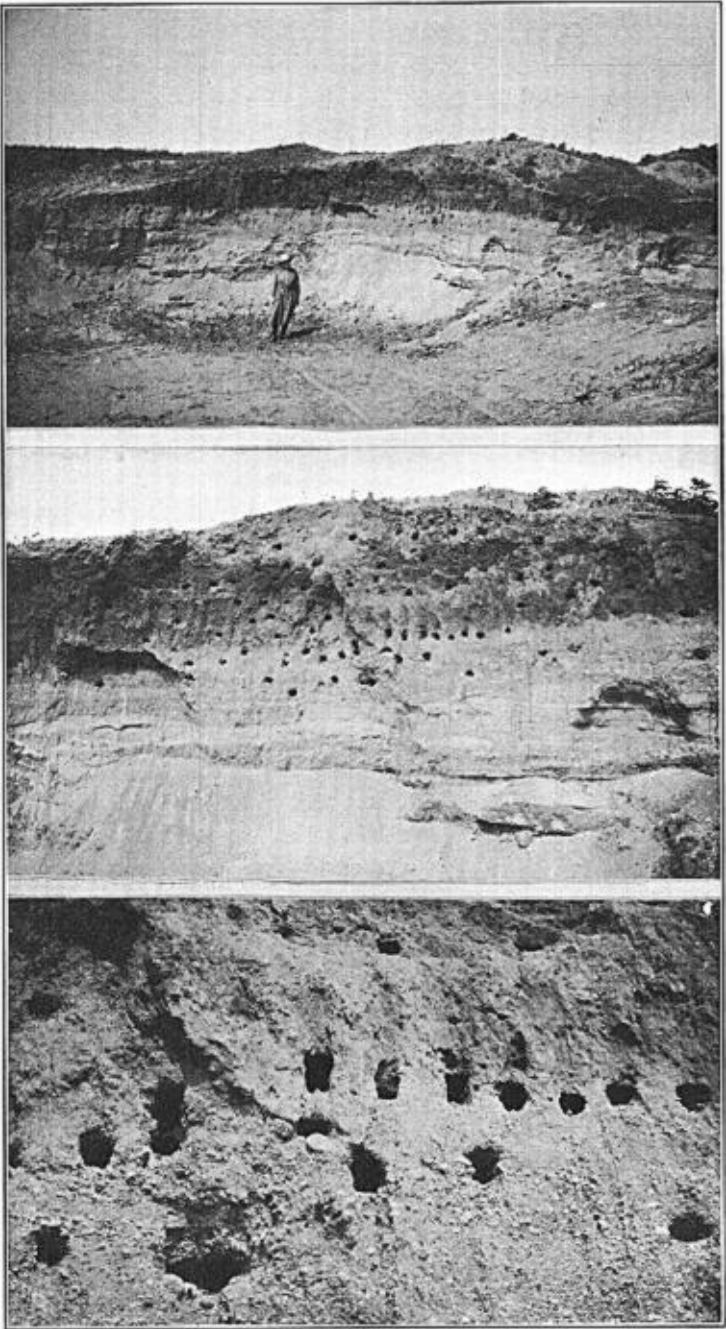
After having been disturbed a number of times by our visits the members of the Swallow colony on our near approach mostly

took to flight, sometimes circling about for quite a while before alighting at the nest again. Presently, one or two of the more daring ones would return to a burrow and soon the others would follow. As the season wore on an increasingly greater number of individuals remained in the burrows for a longer time following our arrival. No doubt they considered themselves better protected there, now that most of the burrows were of some depth. Perhaps also the instinct to protect and incubate the eggs at any reasonable cost restrained them.

In attempting to secure adult birds for banding it seemed best to adopt a scheme whereby they might be captured as they left the burrows. Accordingly, a heavy wire was bent in the form of a circle about two feet in diameter and mounted on a long wooden handle. A conical bag of heavy mosquito netting was then made fast to the ring. This apparatus could be held easily in front of a single burrow or several, in case they were close together, and if a sufficient degree of watchful waiting were indulged in by the operator a successful capture was the result—provided, of course, that the burrow was occupied.

We found that after the first dispersal of the members of the colony on our approach the most advantageous means of securing examples for banding was to await patiently the return of an individual or two individuals to a certain burrow, then, keeping the opening of the burrow constantly in sight, to rush toward it with the net, cover the opening and wait for the birds to fly out. Sometimes the occupants emerged immediately; at other times no end of beating on the face of the pit or on the turf above the burrow would cause the birds to leave and so after waiting for what seemed more than a reasonable length of time the net would be removed for a look into the burrow when out would dash the occupants to the discomfiture of the would-be captors. Time after time did this take place.

When adult birds were first released and attempted to fly after being banded they seemed to waver a little and to have their sense of equilibrium in the air somewhat disturbed. This was exhibited by a more rapid flapping of the wings and apparent uncertainty of direction and control. I have noticed this feature to be more marked in this species than in any of the more than



NESTING SITE OF BANK SWALLOWS.
DICKINSON CO., IOWA.

thirty that I have banded. Very shortly, however, the bird becomes accustomed to the slight weight and pressure of the band and goes blithely on its way apparently neither inconvenienced nor discommoded in any way by its presence. Perhaps the small size, light weight and delicate adjustment of these little creatures cause them to be more responsive than some other birds.

The first young were banded on July 5 when they were about five days old. Five nestlings occupied this nest which was eight inches from the face to the pit.

In securing the birds for banding, the burrow was carefully enlarged so that a uniform diameter was maintained until the nest was reached. Before digging was begun a pellet of excrement which had been deposited by one of the young was noticed at the edge of the nest nearest the opening of the burrow. This indicated that a visit by the adult birds had not been made since defecation had occurred, for the nesting habits of Bank Swallows are very clean and the adults remove the pellets of the young as they are cast. During a moment's observation before the young were removed one of them scrambled to the side of the nest nearest the opening of the burrow deliberately turned around, elevated the posterior extremity and passed a pellet of excrement over the edge of the nest, then crawled back away from the light.

As the birds grow older they apparently instinctively leave the nest to perform the act of defecation and we came to look upon the presence of the pellets in the burrows as a sure sign that the nest was occupied even though it could not be seen without enlarging the burrow.

After the young birds were banded they were placed in the mouth of the burrow and immediately began to scramble back toward the nest using both feet and wings to aid them in the effort.

Moist sand and gravel were then used to build in the floor of the burrow to the original level, care being taken to leave the reconstruction smooth. Incidentally, it may be mentioned that all five of these birds successfully surmounted the difficulties to which fledgling Bank Swallows are subjected in a state of nature and left the nest wearing bands numbered 115701, 115702, 115703, 115704 and 115705.

Most of the nests in this pit still contained eggs on July 7. However, on July 9, in a shallow roadside cut through black loam and small rocks about two miles north of the Laboratory, three nests of Bank Swallows containing fully fledged young about ready to leave the nest were discovered. One of the nests contained, besides the five fledglings, the body of a dead adult bird literally alive with fly maggots. In spite of the unsavory atmosphere and the presence of the moist decaying body of one of the (presumably) parent birds, the youngsters appeared to be in a flourishing condition and were probably being fed by the other parent.

By July 10, most of the eggs of the gravel pit colony had hatched and three days later practically all the inhabited nests contained young. At this time also some of the young birds had left the nests.

Now that the parental duties were largely over and the young required less attention, the adult birds seemed to wander farther from the nesting sites and it was not an uncommon thing to see small flocks, perhaps accompanied by the young, flying over the lake in search of insects. Seldom were the birds seen on the lake earlier in the season when apparently the bulk of their food was secured by skimming over the fields adjacent to the nesting sites.

Unfortunately, it was necessary to terminate our activities at the Laboratory on July 15, so that observations on flocking and other characteristic actions immediately preceding the autumnal migration are lacking. A continuance of this work over several seasons is much to be desired and such effort should prove well worth while.

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