

THE BARN SWALLOW: OBSERVATIONS DURING BREEDING SEASON
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Since 1966 I have been able to visit Great Gull Island, a Museum of Natural History station, to study the nesting habits of the Barn Swallow (*Hirundo rustica*). As I plan to work on Tree Swallows (*Iridoprocne bicolor*) and other species in the vicinity of the John F. Kennedy Memorial Refuge on Long Island in the coming years, this paper is a report of my findings on Great Gull Island with reference to Barn Swallow.

Great Gull Island is located in Block Island Sound, between Plum and Fisher's Islands at approximate coordinates 411-0720. In the war years, this island was used by the Army as a coastal defense post and the shacks, bunkers and tunnels that remain provide excellent nesting areas for Barn Swallows. The island is about 800 meters long at its longest point and about 140 meters wide at its widest. Some bayberry, poison ivy and Russian olive are found, but the remainder of the areas consist of beach grasses or gravel, concrete and brick.

Methods: Nests were marked with key tags during the years 1966, 1967 and 1968. Every effort was made to band the adults (see EBBA News, 30:5, p. 221) but this was often not successful. Most young were banded, however. Findings were compared with those of von Vietinghoff-Riesch (see references) in his study of the Barn Swallow (*Hirundo rustica rustica*) in Europe. Most birds were captured on the nest, but some were caught with short lengths (6 meters) of mist nets with $1\frac{1}{2}$ inch mesh. A frame of mist-netting, somewhat similar to standard butterfly nets, proved unsuccessful.

Results: In 1966 most eggs were found on June 11 (44); egg-hatching occurred mostly in the first week of July and a total of 62 young were found by July 12. In 1967, most eggs were found on June 25 (43); hatching occurred mostly in the first week of July but only a total of 17 young were found by July 10. The principal reason for this low total was the precipitation which occurred on July 2-3. In 1968 most eggs were found on June 19 (35); egg-hatching occurred somewhere in the first week of July and a count of young was never made as I had to leave the island for lack of time on June 20. It was interesting to note, however, that on June 11, 1968 there were 20 eggs and 11 young and on June 12 (afternoon) there were but 13 eggs and 13 young. Again I must conclude that the principal cause of egg mortality was the .90" rainfall, accompanied by low temperatures (55-60 degrees F.) during the early hours of June 12.

In many instances, incubation was very sporadic. Parent birds were observed sitting on eggs (both sexes, but female more often) in the morning and late afternoon hours. They were often away feeding during the hottest part of the day and were observed near the water along the periphery of the island. When the female was found incubating, the male was always found in the immediate vicinity, particularly in the early morning

hours. When I visited the nests for inspection, the angry male often struck my head, but the female remained on the nest in several cases, until I came within a distance of eight feet. This form of defense by the male was always accompanied by loud chattering calls, but the calls made by the female were somewhat less intense.

Eggs hatched, in all cases, very early in the morning, at the rate of one each day. I have only watched two hatchings, through a telescope. In both cases the parents were not present. Whether the lack of heat (through incubation) affects the newly hatched, I do not know, but in both cases the young grew up without mishap. Only in one of these cases did I watch the return of the parents. It was interesting to note that only the female approached the nest and the male stayed a good distance away. In addition to this, the male stayed at a respectful distance for the following four days.

In all cases, the female attended to nest cleaning. Excrement was dropped over the side of the nest, unlike observations made by Raney (Auk, 58: 1961) where it was found that the excrement was removed up to 300 meters distance from the nest. At Gull Island, excrement was never found more than one meter (radius) away from the nest.

Both male and female take part in the feeding of the young. Most feeding occurred between 2 and 7 pm. In three cases I noted a frequency of 42 trips during these hours. Since most of these observations were made from an exceedingly hot blind, some trips could have been uncounted. Young fallen from the nest were still fed on a regular basis, unless they had fallen into an inaccessible place.

First flight is a phenomenon in itself. 20 to 23 days after hatching, young were found strong enough to fly. In several cases, the first attempt ended up in the vegetation. I often picked up these fallen birds and, apparently dazed, they sat on my outstretched hand for several minutes. Some made more than one attempt, but others after a short rest on my hand flew off into the sky, and soon it was impossible to tell by flight which were the parents and which were the young. The whole process from the initial hop out of the nest to the lofty blue sky took no longer than ten minutes.

The subject of second broods is still somewhat of a mystery, as I was not able to stay on the island beyond July 12 in any of the three years.

One nest site demands special attention. All but one nest was built on ceiling beams and in niches. This one nest was built without the use of mud, on top of a canister. Furthermore, I banded the adult female using this nest in 1966 and it was recaptured on the same nest in 1967 and 1968. Two other returns were noted on other nests, but in both cases they were males.

On September 17, 1966 one young was recaptured and released alive at Tobay Operation Recovery station (403-0732). It had been banded at Gull Island on July 30, 1966. This is the only recovery to date.

I also noted that the rich breast coloration is not always accurate in sexing Barn Swallows. Some apparent males (by behavior on nest) had breasts as pale as the females. In 1968 I attempted to differentiate males from females by means of the measurement of the longest outer tail feather, and wing chord. I find that wing chords are generally not safe, because there is much difference between immatures and adults. Outer tail feather measurements were found very successful, but only in adults. The following data are based on six females and 12 males:

Female: 77mm. and under Male: 79mm. and over

There seemed to be no overlap. All measurements were taken with calipers from the base of the feather, closest to the skin, to the tip of the feather, with the feather straightened. (See references: Baldwin et al.)

References

- Von Vietinghoff-Riesch, A. 1955. Die Rauchschnalbe. Duncker und Humbolt, Berlin.
- Schaeffer, F.S. 1967. The Barn Swallows of Great Gull Island. EBBA News, 30(5): 221-223.
- Baldwin, S.P., H.C. Oberholser and L.G. Worley. 1931. Measurements of Birds. Scientific Publ. of the Cleveland Museum of Nat. Hist., Cleveland, Ohio.

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