

TABLE 2
MOCKINGBIRDS

Summary of Trapping Records of Birds Banded Each Year Including the Recaptures of these Birds During the Year of Banding and Subsequent Calendar Years

Year banded	Number banded	Recaptures During Calendar Years										Totals subsequent to year of banding		
		1924	1925	1926	1927	1928	1929	1930	1931	1932	1933			
1924	1	1a	1a	1a	0	0	0	0	0	0	0	0	0	1
		Total Recaptures	4	5	1	0	0	0	0	0	0	0	0	6
1925	10	5abcde	3abf	1a	1a	1a	1a	1a	1a	1a	1a	1a	1a	3
		Total Recaptures	9	4	3	1	2	2	1	1	1	1	1	15
1926	31	6a..f	5abdfg	3abf	3acf	1a	0	0	0	0	0	0	0	5
		Total Recaptures	17	28	15	12	3	0	0	0	0	0	0	58
1927	9	3abc	1a	1a	0	0	0	0	0	0	0	0	0	1
		Total Recaptures	8	11	32	0	0	0	0	0	0	0	0	44
1928	44	9a...i	4abik	2ah	0	0	0	0	0	1j	6			6
		Total Recaptures	192	121	2	0	0	0	0	2	125			
1929	79	18a..r	6aqrstv	1t	2at	6abjuvw	11							11
		Total Recaptures	55	16	1	6	13	36						
1930	39	10a..j	3aij	1i	3hik	4								4
		Total Recaptures	15	5	2	4	11							
1931	15	4abcd	4cdef	3cdf	4									4
		Total Recaptures	5	16	6	22								
1932	16	7a..g	6efghij	6										6
		Total Recaptures	58	42	42	42								42
1933	177	75	75	75	75	75	75	75	75	75	75	75	75	75
		Total Recaptures	144	144	144	144	144	144	144	144	144	144	144	144

Each bird recaptured from the group banded in any one year is given individual identity by a letter after the number of recaptured birds in that and subsequent years. The individual represented by a letter in the group banded in one year is not the same as the individual represented by that same letter in the group banded in any other year.

between April 13 and July 3, inclusive. In this same manner the years of recapture of all the other individuals can be read from this table. Of course, the individual represented by a letter in the group banded in one year is not the same as the individual represented by the same letter in the group banded in any other year.

Pasadena, California, February 15, 1934.

THE BREEDING STATUS AND MIGRATION OF THE CASPIAN TERN IN UTAH

WITH TWO ILLUSTRATIONS

By C. LYNN HAYWARD

While scattered references to the breeding of the Caspian Tern (*Hydroprogne caspia imperator*) in Utah are to be found in ornithological literature, little definite information has, to the knowledge of the writer, appeared in print concerning the nesting status and migration of this species in this intermountain region. Bent (1921, p. 210) refers to this bird as breeding "in North America in widely scattered areas," but makes no specific mention of the Utah nesting colonies. It is for the purpose of bringing together such of these scattered references as the writer has been able to locate, as well as to place on record some more recently acquired information, that this paper is written.

Credit is due Mr. Robert G. Bee for much of the contained information as well as for the use of the photographs which were taken by him. Other individuals have also supplied information which is duly acknowledged in the course of the paper.

Breeding Status.—Probably the first published record of the Caspian Tern in Utah was that of Henshaw (1874) who reported it as a fairly common summer bird and mentioned its breeding within the state. Ridgway (1877, p. 639) states that "this powerful tern was more or less common . . . among the marshes near Salt Lake City in June and July." Although this writer makes no specific mention of the breeding of the bird, the presence of the species in considerable numbers at that time of the year would indicate that it was probably nesting near-by.

So far as more definite published records are concerned, the breeding of the Caspian Tern within the state of Utah has been noted only in two localities: Hat Island of Great Salt Lake and Rock Island of Utah Lake.

Palmer (1916) states that when he visited Hat Island in mid-May, 1915, he found a small colony of nesting Caspian Terns. Allee (1926) made mention of Palmer's reference, but did not find the birds breeding there when he visited the same island in mid-July, 1925. It is possible, however, that the nesting season was over at that late date.

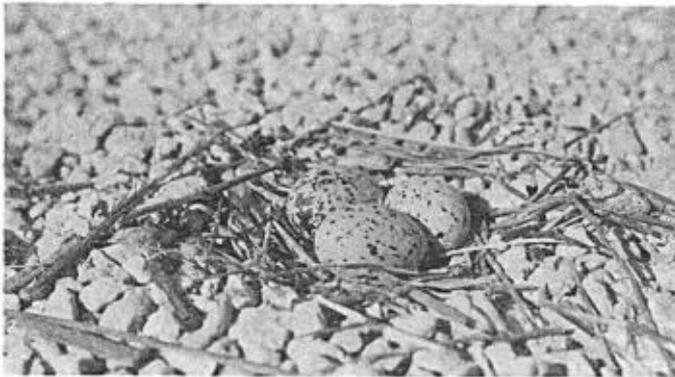


Fig. 24. Nest and eggs of Caspian Tern on Rock Island, Utah Lake, June 4, 1928.

Photograph taken by R. G. Bee.

Just how extensive the Hat Island colony has been and how long it has existed is not known to the writer, but apparently it is not to be found there at the present time. Woodbury and Behle (1933) in their study of the breeding birds of the islands of Great Salt Lake make no mention of the Caspian Tern, and Dr. Woodbury in a recent letter assures me that they are not at present breeding upon any of the islands.

Considerably more data concerning the breeding colony at Rock Island, Utah Lake, are available, since this breeding colony has been under observation for a number of years. This island is located toward the southern end of the lake. Its area varies greatly from year to year and even from month to month, since the level of the water fluctuates. It is said to have become completely submerged in years when the lake was very high, but the droughts of the past few years have reduced the lake to such a low level that the island now comprises a large area. The island is oval in general outline, with a long narrow reef extending southward and a small inlet at the northern end. It is basically composed of travertine rock and is strewn with boulders, gravel and sand. There is a sparse growth of native vegetation including some patches of willows near the center of the island.

The breeding colony of the Caspian Tern apparently has been in existence on

this island constantly for many years, and, although diminished in numbers somewhat within the past few years, still existed when the island was visited in May, 1934.

The only published record that I have noted of the breeding of this bird on Rock Island is that of Cottam (1929, p. 9) who states that they are "fairly common from April 20 to September 20" and that they breed on "Rock Island from May 5 to June 1."

Dr. Vasco M. Tanner and Mr. Clarence Cottam visited the island on May 19, 1927, and found a colony of considerable size breeding there at that time. A few nesting California Gulls (*Larus californicus*) were also noted on that date. Dr. Tanner again visited the island on May 5, 1934. He states that the terns were much less numerous than on the first visit, but that the gulls had greatly increased in number. Two sets of eggs of the terns, one of three and one of two, were collected on this latter date and are now in the collection of the Brigham Young University.



Fig. 25. Portion of Rock Island, Utah Lake, showing several nests of Caspian Tern, June 4, 1928.

Photograph by R. G. Bee.

The records of Mr. Robert G. Bee are for the years 1928 to 1933, with the exception of 1929. In this latter year the island was visited by game wardens and most of the nests and eggs were destroyed.

Mr. Bee on his visit to the island on June 4, 1928, observed approximately thirty nests of the terns. In his notes he says: "The nests, on the south side of the reef, were slight hollows made by the birds in bare gravel. A few nests were observed on the opposite side of the reef, which were lower and evidently less protected from the waves, as the nests were of weed stems crudely banked to keep the eggs from being washed away by the water. However, this arrangement was not entirely a success as there were a few eggs that had been tossed out of the nests and lay in the water." The eggs were mostly fresh at the time this visit was made and the sets ranged in size from one to three eggs.

On Mr. Bee's second visit to the island, on June 9, 1930, he saw only two sets of eggs of the Caspian Tern, but there was evidence that the birds had been harassed. On June 1 of the following year he saw no Caspians on the island and indications were that they had again been disturbed. Dr. J. W. Sugden visited the island on June 1, 1932, and found twenty pairs of terns nesting there.

On his visit to the island on May 28, 1933, Mr. Bee estimated that about

forty pairs of the Caspian Terns were nesting in company with about five hundred pairs of California Gulls. The writer in company with Mr. Elmer Johnson and Mr. Merrill Hammond was on the island about a week previous in the same year (May 20) and noted only about ten nests on that date. Apparently the breeding of the terns had just begun, for there were at that time many of the terns resting on the water near the island that seemingly were not participating in the nesting.

At the time of our visit to Rock Island on May 20, 1933, we found the tern nests located in rather close proximity to each other. They were, however, completely surrounded by the nests of the gulls and even mixed in among them to a large degree. Many hundreds of the gulls were nesting at the time, and the more or less advanced state of incubation of many of their eggs indicated that their nesting season had begun somewhat previous to that of the terns. The nests of the terns were built upon the island well above the level of the surrounding water. They were shallow depressions in the gravel or between the rocks and were sparsely lined with grass and weeds which were built up on the edges to form a rim about three inches high.

The nests of the terns were, as far as we were able to determine, identical with those of the gulls. This fact, together with the close proximity of the two, made it somewhat difficult to distinguish between them. The eggs of the two species are likewise very similar in their general appearance, although when compared in a collection the eggs of the tern appear somewhat more rounded and less pointed on the small end and the shell is slightly more rough to the touch. To assure ourselves of the correct identity of the nests it was necessary for one observer to watch the birds with glasses as they sat on the eggs while another approached the nests.

The terns were more shy than the gulls. When we approached near enough to frighten the terns from their nests the less fearful gulls would immediately pounce upon their eggs and attempt to destroy them. This would happen even within a few feet of us. Such a state of affairs necessitated a rather hurried inspection of the nests and an early retreat to a safe distance. The presence of these gulls in such great numbers in recent years has undoubtedly had a great effect upon the nesting of the terns on the island. Dr. Tanner states that when he first visited the island in 1927 there were few gulls nesting there. Since that time there has apparently been a steady increase in the number of gulls and a corresponding decrease in the number of terns.

In general appearance the eggs of the Caspian Tern that we have noted answer the descriptions and compare favorably with the plates given by Bent (1921). Mr. Bee gives the average size of 54 eggs taken on Rock Island at various times as 64.39 by 44.98 mm. The largest egg in his collection measured 69.85 by 45.47 mm. and the smallest 59.56 by 43.43 mm. Five eggs comprising one set of three and one of two in the collection of the Brigham Young University show the following measurements: 64.5 by 54.8 mm.; 61.0 by 42.2 mm.; 63.5 by 45.1 mm.; 60.9 by 43.4 mm.; 59.5 by 44.1 mm. The sets range in size from one to three eggs.

Migration.—Migration data concerning the Caspian Tern are rather meager as far as Utah is concerned. Mr. G. E. Mushbach and Mr. Archie V. Hull of the Bear River Migratory Bird Refuge have kindly sent me the following dates for first arrivals in the spring: April 24, 1930; April 18, 1931; April 13, 1932; April 25, 1933.

Cottam (1929) records the terns as being in Utah Valley from April 20 to September 20. Our own records show April 29, 1932, as the earliest date of arrival, at which time approximately 50 birds were seen on Utah Lake.

SUMMARY

The above data indicate that the Caspian Tern has been a fairly constant nesting species in Utah for many years. Breeding colonies have been noted on Rock Island, Utah Lake, and Hat Island, Great Salt Lake. The size of the colonies has varied greatly from year to year, depending largely on the degree to which they have been disturbed by visitors to the islands as well as by nesting gulls. The birds apparently arrive in Utah about the middle of April and commence their nesting activities about a month later. Should their breeding grounds be left unmolested it is likely that they will remain here as a nesting species.

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RACIAL DIFFERENTIATION IN PASSERELLA (MELOSPIZA) LINCOLNII

WITH FOUR ILLUSTRATIONS

By ALDEN H. MILLER and T. T. McCABE

An initial interest in Lincoln Sparrows (*Passerella lincolnii*) occasioned by the finding of significant size differences has led us to inquire into the nature of races in this geographically variable species or rassenkreis. First, we desired to learn the degree to which certain variable characters were correlated in individuals. Could we expect constant linkage of characters in either the genetic or physiologic sense? Second, having found no correlation in many instances, it seemed important to analyze the mosaic of structural variants which characterize a geographic race. Questions arise whether natural race units truly exist in nature and, if they do, whether they are as neatly circumscribed as usually acclaimed. Third, we wished to point out certain types of individual variants, colonial differentiations and incipient geographic variation which might lead in the course of time and further change to the establishment of geographic races of the level of differentiation commonly accorded nomenclatural recognition. Fourth, it seemed desirable to describe geographic trends that