

THE PELICAN COLONY AT GUNNISON ISLAND, GREAT SALT LAKE, IN 1943

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The colony of White Pelicans (*Pelecanus erythrorhynchos*) nesting on Gunnison Island in Great Salt Lake is one of the largest now existing. Consequently it seems desirable to place on record any data which may accumulate from time to time pertaining to the numbers of birds there or their natural history. On May 29, 1943, the writer had occasion to make a hurried visit to the island. Forty young pelicans were banded and the following observations were made.

A landing was effected on the east side of the island about noon. At that time flocks of adults were streaming in from the east, evidently returning from foraging. The flocks were either in irregular V-shaped arrangement or strung out in a straight line. While our landing was being made the flocks would go directly to their colonial nesting sites, but almost invariably one or two individuals would break away from the group and circle over us as though they were scouts investigating the intruders. Some of these returning groups had as few as four pelicans. One had 80 individuals but usually they numbered between 30 and 40 birds per flock. Once three groups of about 40 birds each merged as they approached the island, thus making one large flock of about 120 birds. A few flocks were eastward bound but they were not nearly as numerous as returning flocks. From the direction of approach of most of the birds, it seemed that they were coming from the Bear River Migratory Bird Refuge which is northeast of the island about 35 miles. This area probably serves as the principal foraging ground for the pelicans of Gunnison Island. One large flock was seen coming in from the south, possibly from Farmington Bay or even so far as Utah Lake.

In going to and from the Bear River marshes, the pelicans must fly over the Promontory Range of mountains which runs north and south. The crest of the range is from 2000 to 3000 feet above the lake level. The following day we were on the east side of the Promontory Range about noon and noticed that flocks of pelicans coming from the feeding grounds approached the mountains, then started to circle, all the while gaining altitude until finally they were high enough to fly over the mountain mass. It is not known whether they circled down on the other side or took off directly toward the island. When the flocks approached the island, all seemed to be about the same height above the water.

After 3:00 p.m. the number of returning flocks seemed to lessen, although a few continued to come in all afternoon. Since members of each flock went to the same nesting group it would seem that they all belonged to the same clan. It was noted that many of the returning adults would remain on the outskirts of the colony before mingling with the sedentary birds. The large number of individuals in colonies not standing over young may indicate no immediate change of places between returning individuals and those guarding young, or it may indicate a high percentage of non-nesting birds that are loitering. The former explanation seems the more probable.

In making a circuit of the island, 20 separate colonies were found. The numbers in the groups varied from about 50 to 500. It is possible that the larger groups were actually made up of many smaller colonies situated close together. One thing of certainty was that there are small colonial groups within the whole aggregation. The progress of the nesting season differed between the several colonies but in each group the same stage was represented. One group had eggs only; most had naked young or young ac-

quiring their feathering. A few colonies had the young so far advanced that they had left the nest mounds and were congregated in flocks. When the larger young were captured and banded, they uttered a hoarse cough. Every young pelican had a colony of bird lice in its mouth, the infection doubtless having been acquired from the adults when feeding.

Since different stages in the growth cycle from eggs to young were represented, it would appear that the colonies commence to nest at different intervals. This may be correlated with time of arrival on the breeding grounds of the different groups.

A high mortality rate seemed to prevail throughout. Usually two eggs are laid but most nests had only one young. Many dead and bloated young were lying about. The adults stood silently and motionless at their nests seemingly more or less indifferent to their young. In general the position of the adults was such that the shadow of their bodies fell across the young. Their wings were not partially outstretched. Around noon and for a short time thereafter, in order for the adults to shade the young they stood astride the nest. Later in the day they moved to one side so that their shadows fell on the young. Some of the adults were ineffectual in their efforts to shade the young through their failure to change their position with respect to the direction of the sun's rays. Once in a while a young pelican would attempt to crawl out of the shade but would be pushed back by the adult with its bill.

Adults did not interfere with the antagonism of the young toward each other when two occupied the nest and it seemed that the older and larger of the two young was continually picking at the younger or smaller. Undoubtedly this is a large factor in the high mortality rate. The adults, although closely situated, were rather tolerant of each other; only once did I see two snapping at each other, but neither changed its position.

A few notations were made regarding food and feeding habits. In all the piles of fish disgorged by young and adults, only remnants of carp were found. One large carp regurgitated by an adult measured 13 inches long, 3 inches wide and 4 inches deep. The efforts of the bird to take off were abortive until it relieved itself of this load. The fishes regurgitated by returning adults showed scarcely any digestion. Those egested by the young were partially digested. This suggests that the young were not fed immediately upon the return of the adults but sometime later when the adults had partially digested the food. Indeed, the young could scarcely ingest the large chunks or entire fish such as the adults "threw up." It was further noticed that some young were continually begging for food and were fed at intervals. They did not seem to receive much at any one time.

While situated on the top of the centrally located peak, from which position all the colonies could be seen, a count was made of all adult pelicans then on the island. The time was 3:00 p.m. The total figure arrived at was 3700 adults but a few were coming and going all the time. Probably the number of nests would not be as high as the figure given for the total number of adults present at that time. There was not time available to make an accurate nest count. The pelicans were not quite as numerous as they were eleven years earlier when the writer visited the island (Condor, 37, 1935:33). In this connection it should be recalled that in 1935 the pelicans of the region went through a critical period when their food supply was drastically curtailed as a consequence of drought. Probably there was considerable reduction in numbers at that time. If so, the population seems to have recovered fairly well. The Hat Island colony was abandoned in 1935 and 1936 and possibly for longer (Condor, 38, 1936:220-221). The writer was unable to visit that island in 1943 but reports of members of the Salt Lake Yacht Club indicate that pelicans nested there in that year.

There seemed to have been considerable change in nesting sites occupied in 1943 as compared with 1932. In general the central saddle of the island was the center of the area frequented in both years. However, areas of great concentration in 1932 were deserted in 1943 and the birds had chosen sites in 1943 that were not used in 1932. The pelicans had occupied a much more extensive area in 1943 than they had in 1932 even though they were more numerous in the earlier year.

A few miscellaneous observations were made that do not concern the pelicans. No attempt was made to count the California Gulls (*Larus californicus*) nesting on Gunnison Island in 1943 but they seemed much less numerous than in 1932. This is significant because new gull colonies have appeared in the Great Salt Lake area since 1932 and the colony at Rock Island, Utah Lake, has increased in size in late years. It would seem that these changes might have been made at the expense of the Gunnison Island colony.

In 1932 there were 16 nests of the Treganza Great Blue Heron (*Ardea herodias treganzai*) on the island. No herons were there in 1943. The nest platforms looked as though they had been abandoned for years.

A nest of a Raven (*Corvus corax*) was found in a small cave overlooking the pelican nesting grounds. Four young about ready to fly occupied the bulky nest. On the ground at the foot of the ledge were 21 shells of gull eggs. Evidently the contents had served as food for the young ravens. Probably embryos in advanced stages had been removed, for the eggs had been utilized lately and most of the gull eggs on the island had hatched or were pipped.

A Prairie Falcon (*Falco mexicanus*) was seen at the north cliff of the island and judging by its actions it had a nest somewhere in the vicinity.

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