

Breeding Success of the White Pelican in Two Colonies in Manitoba in 1964

by Harold Hosford, Charleswood, Manitoba

The object of this report is to record a series of observations made chiefly in 1964 at two nesting colonies of White Pelicans (*Pelecanus erythrorhynchos*) found on East Shoal Lake, Manitoba (Latitude 50° 20'N and Longitude 97° 30'W). For the purposes of this study the term "breeding success" is defined as the total number of live young found in each colony on the final date of observation, expressed as a percentage of the total number of young and eggs found in the colony on the first date of observation. Note that these figures do not represent the true success of the colony, for eggs would be laid after the first count and not all the young found on the final count could be expected to survive.

History

East Shoal Lake is a typical prairie lake, shallow, semi-alkaline and subject to considerable annual fluctuation in level. The level is controlled by annual precipitation and evaporation, there being no major drainage into or out of the lake. During periods of heavy precipitation there may be a sudden, and sometimes dramatic, rise in water level. If this coincides with the nesting season, severe losses to marsh and ground nesting birds result. In dry years, the lower water level will

often leave island colonies high and dry.

I first visited the area in June, 1962, when the water level was low as a result of the drought the previous year. At that time the pelican colony was situated at the tip of a long rocky spit which extended about half a mile into the lake. It was obvious from the appearance of the surrounding terrain that the tip of the spit would have been an island in years of higher water level. I estimated that there were then 300 pairs of nesting White Pelicans.

Late in May the next year (1963), the colony was observed through eight power binoculars from a point about two miles away. A continuous flow of birds was observed moving about the colony and it appeared to be thriving. During the next four weeks the area was subjected to severe storms and heavy rains. When the colony was visited later in June it was found completely inundated by the rising water which resulted from these heavy rains. Apparently no young were raised that year. The last half of 1963, the winter of 1963-1964, and the spring of 1964 was a period of below-normal precipitation in the area and hence the water levels were considerably below those of June, 1963. On June 1, 1964,



White Pelicans

Photo by Fred W. Lahrman



White Pelican colony at Quill Lake, Saskatchewan

Photo by F. G. Bard

I visited the area with Dr. R. D. Bird and Mr. H. Copland, to observe the changes which had taken place since the previous spring. We found that there were two colonies, both on islands situated a short distance from the shore and about half a mile apart. To simplify records, these two colonies are hereafter designated Colony A and Colony B with pertinent notes concerning each under these headings.

Colony A

Colony A used an island, about five acres in area, apparently newly formed in 1963 by the rising water. As a result of the uneven nature of this island there were pockets of vegetation which separated the nesting groups of pelicans. This vegetation included a few scattered clumps of Balsam Poplar (*Populus balsamifera*) about 10 feet in height, clumps of willow (*Salix* spp ?), bluegrass — the dominant groundcover over much of the island, and a few patches of phragmites and sweet clover.

On June 1 this colony consisted of 212 White Pelican nests, and 39 Herring Gull (*Larus argentatus*) nests. Of the White Pelican nests, 205 contained eggs and seven contained newly-hatched young. Clutch size ranged from one to four eggs with two eggs being the most common. The pelican

nests were dispersed in groups over the island. The largest of these groups contained 69 nests and was located near the central, high part of the island. The remaining clusters of nests were scattered, apparently on the highest point available. In at least two cases these groups of nests were situated under Balsam Poplars. The Herring Gull nests were generally located on the perimeters of the groups of pelican nests, e.g., in one instance seven gull nests ringed a group of 11 pelican nests.

When I visited this colony on June 7 to band the young gulls I found a marked drop in the number of pelicans. Time did not permit a precise count but empty pelican nests were noted as well as punctured eggs. On June 27 I returned with Mr. Copland, Gordon Smith, and Warren Johnston to complete banding the young gulls and to band the young pelicans. We found only 22 young White Pelicans. Based on a total of 410 eggs and young present on June 1, these 22 young represent a breeding success of approximately 5 per cent.

Colony B

Colony B used a gravel island about half an acre in area, believed to be the remnant of the spit used by the

original colony in 1962. Bluegrass was the principal vegetative cover with some phragmites and sweet clover. On June 7, 1964, Dr. R. D. Bird, Dr. L. B. Smith, and Mr. John Jack made a survey of this colony and Dr. Smith subsequently reported their findings to me. Seventy-four White Pelican nests were found in two distinct groups separated by about 30 feet of unoccupied ground. The larger of these groups contained 62 nests and the smaller 12. There were also 22 Herring Gull nests on this island. The pelican nests contained 54 newly hatched young and 49 eggs. On June 15, I visited this colony to band the young gulls but made no count of the young pelicans. The colony was visited for the last time on June 27, when Herb Copland, Gordon Smith, Warren Johnston, and I returned to complete banding the young birds. The final count of young pelicans was 70. Based on 103 young and eggs present on June 7, these 70 young represent a breeding success of 67.9 per cent.

Discussion

The results of these observations raise the question: Why was there

such a difference in success between two apparently similar colonies? The actual cause of the losses could not be determined with certainty but the presence of many punctured eggs near the pelican nests suggests that much of the blame could be attributed to the Herring Gulls. Aside from this, no other evidence of predation was noted. While both colonies were similar in that they were subjected to the same external pressures, i.e., the presence of highly predatory Herring Gulls and the disturbances caused by the frequent visits of man, they differed in ways which may have had a significant bearing on their breeding success.

First, Colony B was a closely knit group, apparently nesting on familiar ground (part of the original island). The colony site was completely exposed with unobstructed passage in all directions which permitted easy movement to and from the nests. This would reduce the time when the nests would be left unprotected in periods when the colony was being disturbed. This situation contrasts greatly with the uneven character of the island



White Pelican nest

Photo by Hans S. Dommasch

occupied by Colony A. Here the small groups of nesting birds were actually isolated by intervening areas of rank vegetation. The isolated nature of these groups might have permitted heavier predation by the gulls.

The fact that at least two of the groups of pelican nests were situated among small trees may also have been significant. It would be impossible for pelicans to land or take off in the immediate area of these nests; rather, they would have to land or take off in the open several yards away from the nests and walk the remaining distance. This must certainly have caused considerable confusion at times, which would permit additional attacks by the gulls. Another possibility is a disturbance to a newly organized colony (Colony A), such as my first visit created, which might have upset the birds to the point where many deserted their nests.

Probably none of the above noted possibilities alone, caused the destruction of Colony A, but a combination of any two, or all of them, could have brought about this result. I submit these as possible explanations of the difference in success of these two colonies.

Editor's Note: The White Pelican is a species which bears close watch in these days of increased pressure on

the out-of-doors. Studies such as those made by Harold Hosford, the Editor of the Newsletter of the Natural History Society of Manitoba, are useful in determining the status of the species and its subtle response to environment. The population of the White Pelican in Canada is not large enough to be taken for granted: an estimate of the number of breeding adults made in 1963 by Michael F. Lies, who is working with Dr. William Behle of the University of Utah on the status of the White Pelican, places the number of breeding adults in Canada at 2,075. Concern over the fact that the nesting grounds are being increasingly molested led to a resolution at the Annual Meeting of the Saskatchewan Natural History Society, October 17, 1964, asking for legislative protection. The Society has subsequently learned from the Minister of Natural Resources, the Honourable J. M. Cuelen-aere, that the pelican is not now an unprotected species. The Saskatchewan Game Act was revised in 1963 and that revision includes both pelicans and cormorants in the definition of "game bird" (Section 2, subsection 5). Both pelicans and cormorants are, therefore, completely protected unless a hunting season is declared on them. The Minister has assured the Society that his department has no intention of taking such action in the foreseeable future.



White Pelicans at Greenwater

Photo by Doug Gilroy, Regina