

OBSERVATIONS ON THE WHITE PELICAN IN WESTERN NEVADA

By J. R. ALCORN

In the spring of 1940 and continuing until the present time, the writer has taken notes irregularly on the occurrence and activities of White Pelicans (*Pelecanus erythrorhynchos*) in western Nevada. Previously, Hall (Condor, 27, 1925:147-160) and Bond (*ibid.*, 42, 1940:246-250) obtained considerable information on these birds at Anaho Island, Washoe County.

Migration and Distribution in Churchill County.—Frequent census of birds in the large valley in which the town of Fallon is situated has yielded information concerning the arrival, presence and departure of the White Pelican in and from this area. The earliest spring record for 1941 was on March 23, when six were observed five miles north of Stillwater. In 1942 the earliest spring record was February 7, when one was observed five miles west-northwest of Fallon. These birds were recorded also on March 8, 11, 12, 13, and 17 of 1942. In April of 1941, White Pelicans were seen on seven different days and in May of the same year they were seen on ten different days. The early arrivals were seen in flight or on bodies of water that covered 20 acres or more. From this evidence it is judged that the first part of the pelican migration usually arrives in this area in late February or early in March.

White Pelicans are more widespread and abundant about Fallon during May and June than at any other time of the year. It was only in this period of greatest numbers that many were seen in the smaller ponds and ditches. On such occasions they frequently were observed in flocks of 5 to 20 in drain ditches that were no more than 10 feet across and that contained water less than two feet deep. Observations in July revealed White Pelicans to be less numerous and less widespread. In August only a few were seen and they were usually lone individuals. No sight records were obtained for September in 1940 or 1941, but in 1942 pelicans were seen in this month on several occasions. One sight record for October is available for 1940 and also one for 1941. The latest record date of White Pelicans in Churchill County is November 23, 1942, when two were obtained.

There is no known nesting colony in this valley, the nearest being Anaho Island, in Pyramid Lake, 50 miles or more distant in a northwesterly direction. These observations reveal that many White Pelicans occur about Fallon in the spring migration and to a lesser degree in their nesting period. Their scarcity in late summer and fall is noticeable.

Census on Anaho Island, Washoe County.—The first of two visits to the island was on June 14, 1942, in the company of G. H. Hansen, V. L. Mills and Frank Richardson. These men all assisted in obtaining counts of young. We saw numerous groups of nests and young birds on the northeast side. Especially on the east and south edges of the island, the previous years' growth of alkali weed (*Bassia hyssofolia*) was so thick as to make walking difficult. Several pods of young pelicans were in small clearings within this growth of weeds and thus were isolated from other pods. In areas where there were no weeds, small pods of half-grown pelicans, as also nests with eggs or young, often were so close together as to make difficult the assignment of definite numbers to any one colony.

By counts and by estimates a total of 1553 young pelicans over one-third grown was recorded on June 14. All these were in pods. In addition to these larger young, 1761

nests were counted. These nests contained eggs or small young, frequently both. Four eggs were seen in one nest and three eggs in some nests, but two was the usual number. Likewise, in nests containing small young, two was the usual count.

On the second visit on July 21, 1942, each of 15 nests contained 1 or 2 eggs, each of 20 nests contained 1 or 2 young judged to be less than a week old, and each of about 20 other nests had 1 or 2 small young thought to be about 10 days old. Also there were 650 young pelicans, about half grown, in pods that were closely associated. There were few birds of any age in the area occupied by the large young on the previous trip. Many large young, judged to be from the earlier hatch, were seen on the lake on this later date.

No evidence was obtained on either trip to indicate that nests, eggs or young had been molested by man.

Hall, on June 21 and 22, 1924, counted 1562 young pelicans on Anaho Island. On June 21 and 22, 1940, Bond found about 3000 half-grown young pelicans and 100 nests containing eggs or very small young. On the basis of counts of young, Bond's figures indicated that pelicans had about doubled in number between 1924 and 1940. However, he attributed this increase to the variation in survival in the nesting period and not to any increase in the number of adults nesting on the island.

Comparatively accurate counts show that on June 14, 1942, there were 1553 young pelicans over one-third grown and 1761 nests containing eggs or small young on the island. This information makes it difficult to determine whether there has been any change in the population of nesting adult pelicans in the area since 1924. However, it is thought that there has been an increase in the number of young reaching maturity.

Food.—Although no attempt was made to analyze the food of the young pelicans at Anaho Island, record was made of some regurgitated fish seen on the nesting grounds. On June 14, Cui-ui suckers (*Chasmistes cujus*) were seen on at least 15 occasions. One of these judged to be of average size was 21 inches in length. Three catfish (*Ameiurus* sp.), each about 4 inches in length, and 4 carp (*Cyprinus carpio*), each about 8 inches long, were also seen. The remainder of the fish seen were chub (*Siphateles obesus*). (Carl L. Hubbs and Robert R. Miller regard the two chubs of Pyramid Lake, *Siphateles obesus* and *Leucidius pectiniifer*, as subspecies of *Siphateles obesus*.)

On July 21 the California Gulls hovered over the pelicans and alighted to eat regurgitated fish at every opportunity. For this reason, and also because on this date more of the regurgitated fish were digested beyond recognition, few notes were taken. On the areas occupied by young pelicans earlier in the season, there were many dry Cui-ui suckers. Most of them lacked heads. Conceivably they had been completely or partly digested by the adult pelicans before they reached the island and offered the fish to the young. The suckers may have been too large for the young pelicans and therefore were left on the ground. Thus, abandoned with their heads partly digested, they soon dried and the heads disintegrated.

In 1942, as in 1940 and 1924, the chub (*Siphateles obesus*) appeared to be one of the important foods of these birds. The predation on the Cui-ui sucker adds another food item not recorded by Hall or Bond.

In Churchill County, as opportunity afforded, the writer has obtained pelicans for stomach examination. Most of them were shot by other persons and turned over to me for examination. All were taken from ponds or small lakes in the area. It was noted that the pelicans whose stomachs contained large fish were reluctant to fly when molested. In two instances pelicans that were alarmed flew from small ponds with difficulty. When they were 50 feet or more from the ground and immediately after a shot was fired, they

regurgitated large carp. These carp struck the ground with a "plop"; one was 16 inches in length. A total of 25 adult pelicans obtained for examination reveal that the stomachs of seven were empty or contained remains of fish which were not identified. The other 18 yielded information given in the following table:

Locality	Date	Numbers, sizes and kinds of fish found in stomachs
2 mi. NW Fallon	Apr. 27, 1940	1 (21 inch) carp; weight 4½ lbs.; 2 (4 inch) chub
2 mi. ENE Fallon	June 5, 1941	1 (4 inch) catfish; 1 (2¾ inch) Sacramento perch
8 mi. NNE Fallon	May 5, 1941	1 (12 inch) carp; 1 (2 inch) Sacramento perch
8 mi. NNE Fallon	May 12, 1941	1 (9½ inch) catfish
8 mi. NNE Fallon	May 12, 1941	2 (10 and 20 inch) carp
7 mi. NNE Fallon	May 12, 1941	1 (18 inch) carp
7 mi. NNE Fallon	May 12, 1941	5 (3 to 4 inch) catfish
7 mi. NNE Fallon	May 12, 1941	3 (2½ to 4 inch) catfish
6 mi. E Fallon	June 5, 1942	3 (7½ to 14½ inch) carp; 2 (2¼ and 3¾ inch) Sacramento perch
6 mi. E Fallon	June 5, 1942	1 (7 inch) catfish; 7 (2½ to 3¾ inch) Sacramento perch
5 mi. ESE Fallon	June 15, 1942	4 (2 to 3 inch) Sacramento perch
Soda Lake	June 19, 1942	1 (13 inch) catfish
2½ mi. ENE Fallon	June 22, 1942	2 (7 and 8 inch) catfish
6 mi. E Fallon	June 22, 1942	1 (14 inch) carp
6 mi. E Fallon	June 22, 1942	1 (14 inch) carp; 2 (2 and 3 inch) Sacramento perch
6 mi. E Fallon	June 22, 1942	1 (12 inch) carp; 1 (5 inch) catfish
Mahala	July 13, 1942	88 (1 to 7 inch) Sacramento perch
8 mi. NNE Fallon	Nov. 23, 1942	1 (3¾ inch) yellow perch; 24 (2 to 4 inch) largemouth bass; 22 (3½ to 5 inch) carp; 1 (3 inch) Sacramento perch

The approximate percentages, by numbers, of the fish found in these stomachs are: chub (*Siphateles obesus*), 1.1; carp (*Cyprinus carpio*), 17.8; catfish (*Ameiurus nebulosus* or *Ameiurus melas*), 7.8; Sacramento perch (*Archoptiles interruptus*), 59.2; yellow perch (*Perca flavescens*), .6; largemouth bass (*Huro salmoides*), 13.4.

There are more than fifteen kinds of fishes in the waters within the area where these pelicans were obtained. Further studies in the Fallon area would conceivably change the percentages and add new kinds of fishes to the known list of food of these birds.

Hall in 1924 at Anaho Island found that 3 per cent (by numbers) of the fishes eaten by pelicans were what may be considered food fishes for humans. Bond in 1940 at the same place found that 11.4 per cent were food fish. The findings of Hall and Bond at Anaho Island are in sharp contrast to the data obtained in the vicinity of Fallon where 81 per cent of the fishes found in pelicans' stomachs were food fish.

United States Fish and Wildlife Service, Reno, Nevada, December 1, 1942.