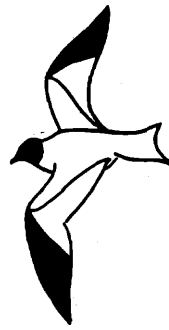


WESTERN BIRDS



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THE STATUS OF THE BROWN PELICAN IN THE MONTEREY REGION OF CALIFORNIA: PAST AND PRESENT

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The status of the Brown Pelican (*Pelecanus occidentalis californicus*) in California up to 1968 has been summarized by Schreiber and DeLong (1969), to 1970 by Schreiber and Risebrough (1972) and to 1972 by Anderson and Anderson (unpublished).

Central California's Monterey Bay region is important to Brown Pelicans, both as a former breeding area and as a very important feeding area during the northward post-breeding dispersal. It seems worthwhile to document their status there in more detail.

HISTORY OF THE POINT LOBOS PELICANS

Loomis (1895) visited Point Lobos in 1894 during an intensive study of marine birds in the Monterey area. Although he observed breeding cormorants, he did not report breeding pelicans.

Williams (1927) was the first to report breeding in the area, on Bird Island in 1927, in what is now Point Lobos State Reserve. Some 10 nests with eggs were found on 25 May. A second visit on 16 June showed only 8 nests with eggs. Finally, 8 downy young were seen on 4 August. He indicated (1931) that no breeding took place in 1928, but that in 1929 55 nests with eggs were found on 29 May and 78 young counted on 30 June. In the years following, small numbers of young were seen in most years, although in some years no breeding took place. There is no evidence that nesting was ever attempted at any site at Point Lobos, other than Bird Island. Searches of offshore rocks to the south in Monterey County also failed to indicate any nesting activity (L. Williams pers. comm.). Williams's notes for those years are listed in Table 1. In most years the actual nesting population at Point Lobos was considerably obscured by the usually large numbers of non-breeders, including immature birds, which arrived from the south in early July to use the former nesting area on Bird Island as a diurnal resting place and nocturnal roosting site (Grinnell and Linsdale 1936).

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In addition to being located at the northern periphery of the breeding range of this sub-species, Bird Island is the only colony not located on an offshore island. It is separated from the mainland by a channel a few meters wide. The breeding history of this colony is perhaps better known than that of any other colony on the Pacific coast. Following the observations of Laidlaw Williams, the area became a State Reserve in 1933. It is readily viewed but also well protected and pelican observations have been contributed by a succession of Park personnel.

The data on nesting activity in Table 1 were compared with surface water temperature data (Skogsberg 1936, Skogsberg and Phelps 1946, Radovich 1961, Bolin and Abbott 1963). No clear correlation emerged, although the cold period from 1948-1956 was one of little or no pelican reproduction at Point Lobos. In 1958, at the start of a warm water period, an exceptionally large nesting was initiated (52 nests), however only one nest with young was noted.

The relationship between high chlorinated hydrocarbon residue levels, consequent egg-shell thinning and declining nesting success in the species, has been discussed by Schreiber and Risebrough (1972). Cox (1970) demonstrated the increase in DDT residues in California marine phytoplankton from 1955 to 1969. The virtual absence of nesting success from as early as 1949 and throughout the 1950s coincides with this increase in DDT residues.

MONTEREY BAY

Regarding the Brown Pelican in Monterey Bay, Loomis (1895) stated that in June it was "...rather common. Through July and August it increased steadily in abundance, toward the last becoming one of the most conspicuous birds of the Bay." He further stated (Loomis 1896) that in 1894 and 1895 "...they were more numerous in December and January than in August. The largest flock had upwards of a hundred birds in it." In the fall of 1896 he found "Pelicans were conspicuous from the outset. On 3rd of October, it was evident that reinforcements had arrived. From that date they were very common" (Loomis 1900a). In the spring of 1897 "They were not common until June. Both white and dark breasted birds were present" (Loomis 1900b).

R. H. Beck worked the area for the California Academy of Sciences at intervals from 1903 to 1910. He reported this species as "arriving from the south after the breeding season, they occur here commonly, remaining until the advent of the next season of reproduction" (Beck 1910).

In addition to its importance as the most northerly breeding site on the Pacific coast, the Point Lobos area has also served as an important roosting area. Grinnell and Linsdale (1936) reported 3000 birds present

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Table 1. Brown Pelican nesting activity on Bird Island at Point Lobos, Monterey County, California, 1933-1973. The figures for 1933-1945 are from L. Williams; those from 1949-1965 are from Dr. H. L. Cogswell's notes and from *Audubon Field Notes*.

<u>Date</u>	<u>Remarks</u>
6 June 1933	44 well-formed nests with incubating birds.
7 July 1933	Only 5 broods seen, plus 8 birds on well-formed nests.
13 July 1933	7 broods.
17 May 1934	9 possible incubating birds, plus 358 others. No young observed in 1934.
17 June 1935	9 adults on well-formed nests and 3 broods present.
11 July 1935	20 downy young was the maximum counted.
29 May 1936	24 adults in the incubating posture.
27 June 1936	15 broods of young.
6 July 1936	27 young.
22 June 1937	7 broods counted.
1938	No reports.
Early May 1939	Indication of nesting (building?) activity.
1940	Failed to complete nesting.
1941	No reports.
21 July 1942	10 young in nests, the first since 1937.
3 July 1943	41 downy young.
24 June 1944	Maximum of 12 families with downy young.
24 June 1945	21 downy young.
1946-1948	No reports available.
17 July 1949	700 estimated to be present, no nesting activity noted.
2 April 1950	30 estimated to be present, no nesting activity noted.
18 March 1951	"Several, only, present, though 50 on 17 Mile Drive, Pebble Beach, and 80 at Point Pinos, Pacific Grove."
1951-1953	No reports published on nesting activity.
15 May 1954	None seen, though coverage thorough.
23 June 1955	15 nests counted, but no young at any time (J. Whitehead Supervisor) (Cogswell and Pray 1955).
24 June 1956	2 pairs nesting, including one with dry chick (J. Whitehead).
1957	No reports.
1958—precise date unknown	52 nests, but only one nest containing (2) young (M. Frincke, Supervisor, and L. Williams).
24 May 1959	27 nests counted (M. Frincke). J. Vandevere reports total for season of only 7 young. 2 nests with 4 young (Cutler and Pugh 1959).
1960	J. Vandevere (pers. comm.) reported 5 nests built, but no eggs or young seen.
1961	None attempted to nest (M. Frincke; Cutler and Pugh 1961).
1962	No reports.

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Table 1 (Cont.)

5 May 1963	3 nests visible (H. L. Cogswell).
28 June 1963	350 birds present, but only one nest remained with brooding bird (H. L. Cogswell; De Benedictis and Chase 1963).
1964	No reports.
25 June 1965	No evidence of successful nesting, although birds seen carrying nesting material (H. L. Cogswell; Chase and Paxton 1965).
29 May and 15 June 1966	3 birds on nests, disappeared by 15 June (H. L. Cogswell; Chase and Chandik 1966).
1967-1973	No nesting activities (pers. obs.)

on 10 November 1935, an indication of its importance as a roost. With small numbers of birds present throughout the breeding season and a rapid build-up after the end of June, Bird Island at Point Lobos Reserve is still an important roost. Of 1768 birds counted on the annual Christmas Bird Count for the Monterey area, in December 1965, the vast majority were at Point Lobos (Highley 1966). More recently I counted 270 birds on 9 October 1969. D. W. Anderson and I. T. Anderson (unpublished) give a detailed analysis of the annual Christmas Bird Count data for this species.

Other important roosts in the area include Elkhorn Slough at Moss Landing. Here the birds leave the Bay and fly across dunes and slough to the extensive salt evaporation ponds of the Monterey Bay Salt Co. Dykes between lagoons provide them with an undisturbed resting place. An idea of the seasonal variation in their numbers in the Bay is found in the water bird censuses done under direction of California Department of Fish and Game personnel by members of the Monterey Peninsula Audubon Society, Santa Cruz Bird Club and Moss Landing Marine Laboratories from January 1967 to June 1968 (D. Pine pers. comm., Browning et al. 1972). Use commenced in mid-June and extended into December, with a peak of 2243 on 23 August 1967 and 1000+ present from August to October. Peak numbers may be observed at sunset as streams of birds arrive from all points on the Bay to roost. I counted 2300 there on 15 September 1968. A marked reduction took place in 1969 when their peak showed 570 on 15 September.

Laidlaw Williams (pers. comm.) indicated that Moss Landing has long had these large roosts; at least back to the early 1930s.

The mouth of the Pajaro River, 5.5 km north of Moss Landing is also a major roosting site in the fall. J. and R. Warriner in recent years have reported large numbers (Table 2).

During summer and fall, large roosts are also present on such offshore rocks as the Lobos Rocks off Soberanes Point, 8.5 km south of Point

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Table 2. Brown Pelican counts from the mouth of the Pajaro River, Santa Cruz County, by J. and R. Warriner.

<u>Date</u>	<u>Total</u>	<u>% Immature</u>	<u>Remarks</u>	<u>Source</u>
1 Nov. 1970	1,100	25% imm.	Over Monterey Bay off river mouth	Chandik, DeSante and Pugh 1971
30 July 1972	862	39% 1st yr. 11% 2nd yr.	—	DeSante and Remsen 1973
25 July 1973	601	20% 1st yr. 15% 2nd yr.	—	Remsen and Gaines 1973

Lobos, and on other Big Sur coastal rocks. Bird Rock in Pebble Beach, offshore rocks at Point Pinos and Hopkins Marine Station, in Pacific Grove, and the sand spit at the mouth of the Salinas River are all important as roosts, and at times up to 400-450 birds or more may be counted at any of these locations.

PROPORTION OF IMMATURE BIRDS OBSERVED

In view of the widespread breeding failure in southern California and Baja California waters in 1968 described by Schreiber and DeLong (1969) and in 1969 (Risebrough et al. 1971), observations were made in the Monterey region to determine the proportion of immature birds present in these visiting flocks. These are presented in Table 3.

Although the birds are declining in northwestern Baja California (Jehl 1973), they are breeding successfully elsewhere (D. W. Anderson pers. comm.). Should declines take place elsewhere in the Mexican breeding population then we can expect regular dispersing populations to show similar trends in the Monterey region. Brown Pelicans regularly reach the mouth of the Columbia River in late fall (Palmer 1962) and a decline at the extremity of their northern wanderings would soon be apparent.

Ainley (1972) summarized censuses for 1965-1972 from the Point Reyes-Farallon Islands area of north-central California, the figures showing a decline, "although the trend was not absolute."

General declines may be masked locally to some extent by the rather marked variation in numbers using a particular area. These variations may be brought about by anomalous oceanographic conditions causing marked fluctuations in their food supply. In the Monterey area birds will at times adopt a temporary roost close to a favored feeding area, only to abandon it should food no longer remain available close by.

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Table 3. Percentage of immature Brown Pelicans present in migrant flocks. Monterey Bay Area, 1968-1973.

<u>Date</u>	<u>Place</u>	<u>Total</u>	<u>Percent Immature</u>
7 July-	Hopkins Marine Sta	?	Increased from 10% to max.
9 August 1968	Pacific Grove		of 33% ¹
2 July-7 Nov. 1969	Same place	324	Varied from 10% to 42% (8 July). Av. during period 23%
1 June-28 Sept. 1969	Bird Rock, Pebble Beach	1098	Av. 21%
15 Sept 1969	Elkhorn Slough, Moss Landing	570	12.5%
9 Oct. 1969	Bird Is., Point Lobos Reserve	270	11%
23 July 1970	Bird Rock, Pebble Beach	160	8% first year, 11% second year
27 Aug.-19 Sept. 1970	Hopkins Marine Sta. Pacific Grove	492 ²	Av. 32% first year Av. 8% second year
2 Oct. 1970	Bird Is., Point Lobos Reserve	270	6% first year, 2% second year
27 Sept. 1971	Elkhorn Slough, Moss Landing	250	— ³
1972	—	— ⁴	—
25 Sept. 1973	Elkhorn Slough, Moss Landing	600	—
25 Sept. 1973	Salinas River mouth	75	—

1. For 1968-1969 immature birds not separated into first and second year.
2. Included one marked with green streamer on right leg. Marked at Puerto Refugio (north end of Isla Angel de la Garda, Gulf of California.)
3. No immature/adult ratios were noted 1971-1973. During this period the U. S. Fish and Wildlife Service undertook counts along the California coast (D. W. Anderson pers. comm.). Those of Warriner at the Pajaro River mouth have been noted in Table 2.
4. No figures, apart from early August indications of a large build-up in Monterey Bay, with many first year birds.

It is suggested that observers pay particular attention to age ratios in future censuses and counts contributed to regional reports and Christmas Bird Counts in *American Birds* and other publications. Preliminary data indicate that there may be three or four identifiable age-classes, before full adult plumage is attained (D. W. Anderson pers. comm.).

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SUMMARY

The known history of the occurrence and former nesting of the Brown Pelican in the Monterey region is discussed. The most successful nesting seasons recorded at Point Lobos were 1929 (79 young counted), 1936 (15 broods), and 1943 (41 young counted). 1959 was the last year in which young were seen. Sporadic nest building activity and some "incubating" birds were noted until 1966. Evidence is presented indicating the great importance of the Monterey Bay area to this species, particularly during the northward post-breeding dispersal.

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