

BANDING RECORDS OF CALIFORNIA BROWN PELICANS

By RICHARD M. BOND

On April 16, 1939, E. L. Sumner, Jr., and I visited West Anacapa Island off the coast of Ventura County, California, in the course of a biological reconnaissance of the Channel Islands National Monument. California Brown Pelicans (*Pelicanus occidentalis californicus*) were in the midst of their nesting period at this time. We found them in colonies on the steep south slope and along the ravines on the mesa on the north side of the island. As nearly as we could determine, there were about 2000 pairs nesting on this island. Nest contents ranged from fresh eggs to young practically full size and beginning to feather out. Perhaps half the nests contained young about half grown, with the primaries just beginning to show. One hundred and five of the young were banded, the number being limited by the number of bands, not by the number of candidates for them.

A matter of some interest was finding several pelican nests in island oak (*Quercus tomentella*) and toyon (*Photinia arbutifolia*), some ten or fifteen feet from the ground. I am not aware of other records of this species nesting in trees.

On May 16, 1940, I again visited the Island. This time in company with Messrs. Scoyen, Oberhansley and Fry, of Sequoia National Park. Oberhansley and I banded 450 young in about six hours, this time running out of time and energy, rather than birds or bands.

The known history of the nesting pelicans on Anacapa Island is of some interest. They were apparently first noted there in 1898 on the west island, although the number found was not indicated. Observations of various authors are tabulated herewith; most of the published data are summarized by Willett (1933:18).

Reported status of pelican colonies on Anacapa Islands

Date	Island	Number	Stage	Source
August, 1898	West	Not given	Nearly full grown.	Holder, 1899:71-72
June, 1899	All	None	Not nesting.	Willett, 1933:18
June 5, 1910	East	About 500 nests	Fresh eggs to nearly full grown young.	Willett, 1910:171
March 17, 1911	East (none on West)	"A Perfect Swarm"	Carrying nesting materials.	Burt, 1911:167
May 12, 1912	East (?)	About 200 pairs	Nest building about complete; 2 eggs.	Peyton, 1917:102
June 11, 1915	East (?) West (?)	Colony had increased noticeably	Eggs and newly hatched young; well grown young.	Peyton, 1917:102
March 7, 1916	East (?) West (?)	At least 1500 pairs	Egg laying begun. Egg laying complete.	Peyton, 1917:102
March 2, 1917	?	At least 2000 pairs	Laying complete, 1 nest hatched.	Peyton, 1917:102
March 9, 1930	?	200 nests	"Hvy. Inc. eggs to downy young."	Ashworth and Thompson, 1930:122

Mr. Raymond LeDreau, who has lived on the island since 1930, says that pelicans have nested on West Anacapa every year since then but not on East or Middle Anacapa. He was told by earlier residents that the pelicans left the east island when the lighthouse was established there.

I had visited the island in April, 1935, and found the pelicans in about the same numbers and places on the west island as in 1939, but the nesting cycle was much stretched out, there having been more eggs, and also, on the south side especially, a good many young already able to fly and others nearly fully feathered. This seems to agree with Peyton's observations in 1916.

In 1940 there were rather more birds far down on the south side than in 1939, and the westernmost two ravines on the north side where Sumner and I had banded the previous year were deserted, whereas the easternmost ravine had several hundred nests instead of only a dozen or so. The nesting season had also been retarded at least three weeks, since the young showed, on the average, about the same stage of development as a month earlier the previous year. There were perhaps fewer eggs, however, and more, nearly full-sized young.

In 1941, the island was visited by staff members of the Los Angeles Museum, to whom my thanks are due for their report that the whole colony (still about the same size) had moved to the south slope of the island.

Damage to young in the banding operations was apparently slight. In 1939, one young plunged off a rock and killed itself. (This was on Prince Island, off San Miguel Island, however. Sumner banded 36 young here from which there have been two returns: one found dead September 9, 1939, in Golden Gate Park, San Francisco; and one taken November 23, 1940, at Morro, San Luis Obispo County, California.) In 1940, one young among the many that tried to escape by climbing into the prickly



Fig. 47. Female California Brown Pelican on nest on West Anacapa Island, April 16, 1939.
Photo by E. L. Sumner, Jr.

pear cactus died, apparently as a result of running a thorn into the heart. One additional banded young was found dead on the nesting grounds in 1941. In 1939, eggs and young were not molested by other birds during banding operations, but in 1940, gulls fed eagerly on fish regurgitated by the young, and a pair of ravens was seen to carry off at least eight eggs. The adult pelicans were solicitous and did not usually leave the nest until approached within fifteen or twenty feet (fig. 47), and they returned by the time we were one hundred feet or so away.

From the 105 young banded in 1939 there have been seven returns (fig. 48)—

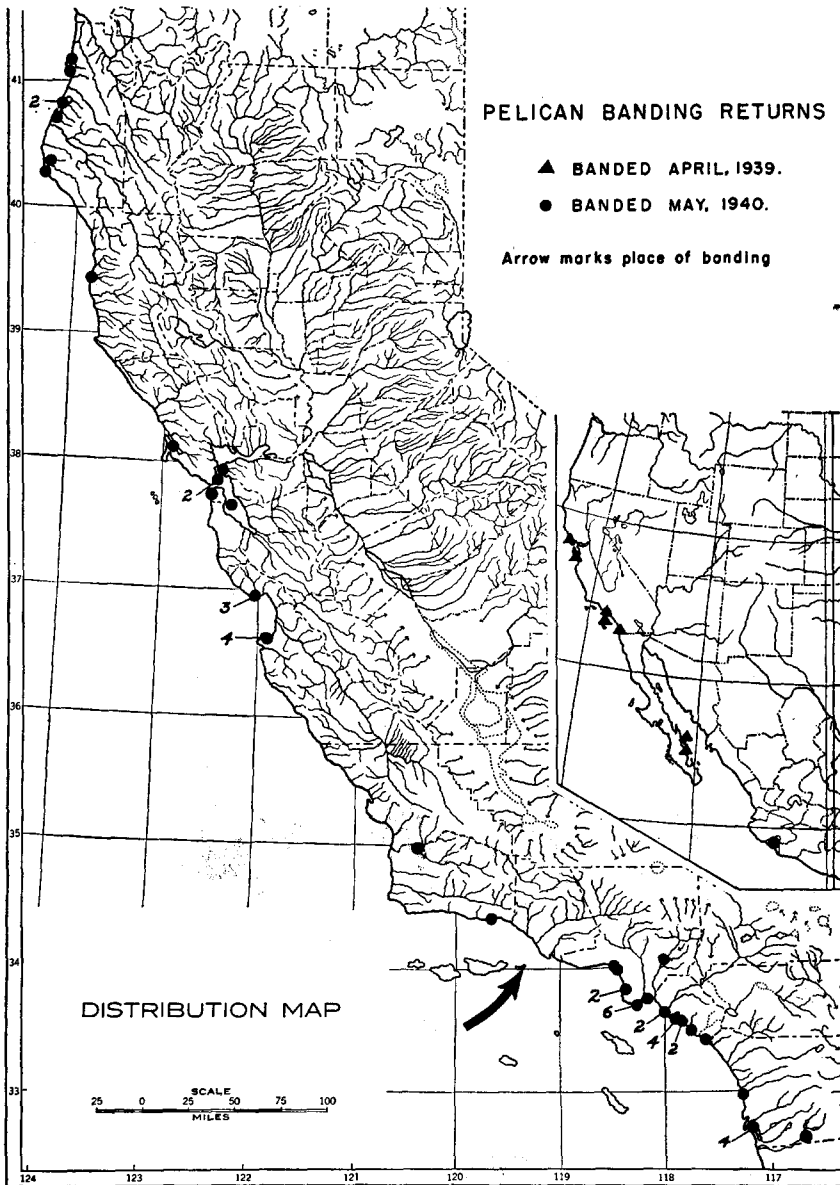


Fig. 48. Location of 59 returns from 555 California Brown Pelicans banded on Anacapa Island in 1939 and 1940.

two shot and the rest "found dead." Dates were: "fall" of 1939; November, 1939 (2); January, 1940; May, 1940; June, 1940; and May, 1941. The farthest north was from Bolinas Bay, Marin County, California, and the farthest south was "shot fall of 1939 at and by a native fisherman, Agua Verde Bahia, Baja California" (about lat. $25^{\circ} 40' N.$); this is in the Gulf of California.

From the 450 birds banded in 1940, there have been 53 returns, two birds having been reported twice. One was 40-809333: "no information, April, 1941, at Newport Beach, California" and "band number taken 4/11/41 at Newport Beach, California." The other was 40-809869: "caught alive 3/30/41 at Newport Beach, California" and "found dead 5/4/41 at Balboa Beach, California." These localities are only two or three miles apart. These second returns are treated the same as other returns in the following discussion.

The report from farthest north was of a "band found 5/1/41 at Stone Lagoon [Humboldt County], 40 miles north of Eureka, California," about lat. $41^{\circ} 15' N.$, and that farthest south was of a bird "taken 12/16/40 at Colima, Mexico," about lat. $19^{\circ} N.$ This latter point is about thirty miles inland, and at some elevation, so it seems possible that the report is erroneous and that the bird may have come from nearer the ocean.

The "center of gravity" of the returns is about 165 miles up the coast from Anacapa Island, or about where the Monterey-San Luis Obispo County line meets the sea. Its location so far north is almost certainly the result of the small population of potential band-readers in Baja California and the unlikelihood of a Spanish-speaking person's making out the short English directions on the bands. The places and dates of the returns seem best explained to me by assuming that there is no migratory movement of the young pelicans and that they may drift about widely within the general range of the subspecies. The returns, of course, give no indication of how closely attached the adults are to the colony where they first nested, nor how far they scatter in winter.

If the report of the bird from Colima is correct, this return is not only the one farthest south but also is the farthest inland. Other inland reports are from Potrero, San Diego County, on August 8, 1941, about twenty-five miles inland; from San Gabriel, Los Angeles County, April 4, 1941, about twenty-one miles inland; from Santa Maria, Santa Barbara County, about eleven miles inland; and from Petrolia, Humboldt County, April 25, 1941. All persons reporting inland records were written, asking for more exact data, but only Mr. Joseph Bognuda answered: "The bird was found two miles east of Petrolia, Lat. $40^{\circ} 18' 30''$, Long. $124^{\circ} 15' 30''$, $5\frac{1}{2}$ miles from the ocean, elevation 200 feet. In the Mattole River Valley. . . . I believe this bird wandered up the river for food and was shot by someone." If more banding returns of this caliber were made, we would know much more about bird movements than we now do.

Returns from more or less enclosed bays of the ocean are numerous (both years combined): Stone Lagoon 1, Humboldt Bay 3, Tomales Bay 1, Bolinas Bay 1, San Francisco Bay 4, Monterey Bay 8, Newport Bay 6, and San Diego and Mission bays 5.

Whether the birds were dead or alive when the band number was taken, or if alive, whether sick or well, and whether released or killed, is not clear in many of the returns. Of the 60 birds reported, 32 were "found dead"; 5 were "taken"; 2 were "shot"; 1 was "found"; 1 "leg only found"; 1 "taken from from leg of bird"; 1 "band found"; 1 was "killed by car at Ft. Bragg, California"; and 1 "died from being oil soaked"; concerning two birds no information was given. One bird was "picked up badly injured."

Of the twelve birds that were certainly or possibly released, there were three reports of "band number taken"; four "captured" or "caught"; and five were "caught on fish

line"! I wonder if it can be assumed on this basis that one out of every 90 California Brown Pelicans along our coast ends up on a fish hook.

The dates of the returns from 1940 only are shown in figure 49, and it will be observed that April, 1941, is by far the most important month. As a glance at the map (fig. 48) will show, the greatest concentration of returns was from along the

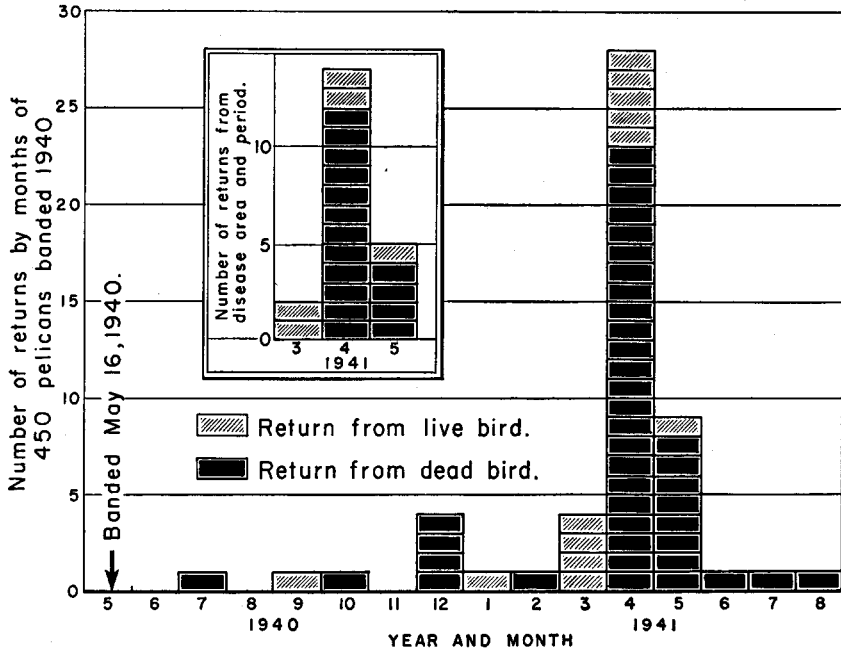


Fig. 49. Number of returns, by months, of 450 California Brown Pelicans banded on May 16, 1940.

beaches of Los Angeles and Orange counties. The actual dates of the returns from March through May show no correlation either with storms, which might be expected to have killed the birds, or week-ends when people might be most likely to find them. However, in News From The Bird Banders (16 (2), 1941:11) there is quoted a letter from Dr. Carlton M. Herman, who says:

We were informed some time ago of losses in pelicans occurring at the main pier at the Redondo Beach. Our investigations have shown that this was caused by a paratyphoid bacterial organism. We have not been able to find a similar condition anywhere else along the coast. All birds infected are very sluggish, emaciated and weak and the casual observer is immediately aware that the birds are sick. It was a simple matter in our experience to walk up to these birds on the beach and catch them, which is a rare thing for healthy pelicans.

Dr. Herman has told me that the culture recovered was lost before any experimental work could be done with it, and that he was unsuccessful when, about May 15, he returned to Redondo Beach to secure further specimens, since most of the pelicans had left the spot.

This disease probably accounts not only for most of the birds "found dead" (16) in southern California that spring, but also for many of those caught alive (5). Even so, April and May seem to have been the worst months for the pelicans in regions where the epidemic is not known to have occurred.

SUMMARY AND CONCLUSIONS

1. California Brown Pelicans have nested most years since 1899 on Anacapa Island. They have varied considerably in numbers. The colony sites have varied from

year to year, and the nesting period has varied also. Different colonies have had different nesting dates in the same year.

2. One hundred five young were banded in 1939 and 450 in 1940. Seven returns have been received from the 105 bands (6.66 per cent), and 53 from the 450 bands (11.77 per cent).

3. Returns were received from as far as about 550 miles north and 1400 miles south of the banding point. The "center of gravity" of the returns is a point about 165 miles north along the coast from the point of banding, or about where the Monterey-San Luis Obispo County line meets the sea. The only safe conclusions to be drawn from this latter fact are that the human inhabitants of Baja California are relatively few, or that they do not ordinarily send in banding returns, or both. There is no evidence of any migratory movement on the part of young Brown Pelicans.

4. Percentages of the 59 dated returns by months are: January, 3.4; February, 1.7; March, 6.8; April, 47.4; May, 18.6; June, 3.4; July, 3.4; August, 1.7; September, 1.7; October, 1.7; November, 3.4; December, 6.8. Aside from an epidemic of paratyphoid in southern California, which probably accounts for only about half the returns for March, April and May, 1941, there is no indication as to why there are more returns in April than in any other month.

I would like to express my thanks to the National Park Service, particularly to Mr. E. Lowell Sumner, Jr., and Mr. E. T. Scoyen, who made my visits to the islands possible, and to the United States Coast Guard, whose cutters transported us and whose officers and men assisted us in many ways, and to all those who reported banded birds.

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Note: Since this paper went to press, three additional returns from California have been received, as follows: Sunset Beach, Orange County, October 31, 1941; Palomar Mountain, San Diego County, November 15, 1941; and San Francisco Bay at Richmond, February 3, 1942. All were banded on May 15, 1940, and all were found dead.

Soil Conservation Service, Berkeley, California, February 17, 1942.