

## THE BIRD LIFE OF SAN IGNACIO AND POND LAGOONS ON THE WESTERN COAST OF LOWER CALIFORNIA

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**S**ITUATED at intervals along the Pacific Coast, between Point Firmin in southern California and Cape San Lucas, which is the extreme southern end of the Lower California peninsula, are many salt water lagoons or estuaries. These tidal "esteros" range in size from mere cañon mouths, that flood with the high tides, to great bays many square miles in area and with water of considerable depth. Commencing at the north, these lagoons may be considered in six groups: (1) Point Firmin, which includes the San Pedro, Long Beach and Newport lagoons; (2) San Diego, which includes Mission and San Diego bays; (3) San Quintin, which includes San Quintin Bay and surrounding salt flats; (4) Northern Vizcaino Desert, which includes Manuela, Black Warrior and Scammon lagoons; (5) Southern Vizcaino Desert, which includes Pond, Coyote and San Ignacio lagoons; and (6) Magdalena, which includes the huge Magdalena Bay, with its many long inlets.

There is more or less literature on the bird life of lagoons in all these groups with the exception of that listed above as number five. The writer was therefore particularly fortunate in having opportunity, as the guest of Captain O. M. Seely, of the fishing boat "Nuchum", to visit both San Ignacio and Pond lagoons during April, 1927. The itinerary was necessarily governed by the prime object of the cruise, namely the securing of fish (mullet and sea trout), a task in which the writer rendered such manual assistance as he was able. Under Captain Seely's direction, the "Nuchum" passed the entrance to Pond Lagoon on April 10 and arrived in San Ignacio Lagoon at noon on April 11. The following afternoon it went back to Pond Lagoon, which was entered at daybreak on April 13. The boat remained in Pond Lagoon until the early morning of April 17, when it returned once more to San Ignacio Lagoon. Most of April 17, and all of April 18, were spent here, the 500-mile return trip to San Diego being started at 8 a. m. on April 19.

In addition to Captain Seely and his crew of two, the party included, beside the writer, E. E. Sechrist and Paul Bussey, who were commissioned to secure eggs and bird specimens for the private collection of Griffing Bancroft, a member of the San Diego Society of Natural History. These two spent their whole time at San Ignacio Lagoon, camping there while the others made the trip to Pond Lagoon. In the belief that no ornithologist had previously entered these lagoons, the writer kept daily field notes in especial detail, upon which the present paper is based.

In physical character, all six groups of lagoons listed in the first paragraph share two features in common, namely that no permanent flow of fresh water enters from the inland mountains, and that each, on the ocean side, has a great protecting sand spit thrown up by wind and wave action. The marsh floras of the four northernmost groups are almost identical, probably due to the fact that the same great oceanic current washes the entire shore line in which they are situated. However, by the time one reaches the fifth or Southern Vizcaino Desert region, the influence of coolness changes to one of semi-tropical character. The water is warmer and, at the season of the writer's visit, was peculiarly clouded, so that it was impossible to see even a few feet beneath the surface. The kelp, so familiar along our northern shores, is found to have disappeared, and with it, according to Captain Seely, the range of the crawfish (*Panulirus inter-*

*ruptus*) comes to an end. Replacing most of the low-growing *Salicornia*, great tangles of impenetrable mangroves (*Rhizophora mangle*) line the sloughs of the lagoons, in which the avian life elsewhere associated with mangroves is found.

The three lagoons in the group under discussion are in the vicinity of the large, semicircular Ballenas Bay, which lies at about latitude 26° north and longitude 113° west. San Ignacio Lagoon is at the eastern end of the bay, and the entrance to Pond Lagoon is about 40 miles to the west. Coyote Lagoon, which was not visited, lies between them. As the writer found the two lagoons which he entered to differ somewhat in avifauna and as they were vastly different in area, he will describe them separately.

#### SAN IGNACIO LAGOON

This lagoon is the most accessible of the three lagoons in this group. A channel of fair depth marks the entrance, but during stormy periods, when strong westerly winds blow, huge breakers pile up on the bar which are not always safe to navigate. Even during calm weather, crossing this bar has its thrills, and the writer experienced a decided chill down his spine as he watched a huge, foam-crested breaker racing up on the stern of the speeding boat that carried him across.

This was on the morning of April 11, 1927. The first ornithological observation made disclosed the presence of numbers of Royal Terns (*Thalasseus maximus*), California Brown Pelicans (*Pelecanus occidentalis californicus*), and Black-vented Shearwaters (*Puffinus opisthomelas*) feeding just outside the breakers as we crossed the bar. As the anchor was being lowered, just within the protection of the lagoon, a lone Glaucous-winged Gull (*Larus glaucescens*) circled near the boat.

Once over the bar, one is impressed by the great area of this lagoon. A long arm of water, 3 to 5 fathoms deep, extends about 25 miles inland in a northeasterly direction. The town of San Ignacio lies not a great distance from the headwaters of this arm. Well up this inlet are found two low, flat, barren islets, each about half a mile in length, known as "Whale Islands." They were visited for a couple of hours on April 12.

On landing upon them, a dozen Ruddy Turnstones (*Arenaria interpres morinella*) were found feeding with a small mixed flock of Western Willets (*Catoptrophorus semipalmatus inornatus*), Red-backed Sandpipers (*Pelidna alpina sakhalina*) and American Black-bellied Plovers (*Squatarola squatarola cynosurae*). Several small "cardons" or giant cactuses (*Pachycereus*) were growing on the islands and were well scarred with woodpecker work, but no inhabited holes could be found. A few large "frutilla" (*Lycium*) bushes were inhabited by a single pair of extremely timid Western Mockingbirds (*Mimus polyglottos leucopterus*) and a lone Shrike (*Lanius ludovicianus nelsoni*), which was as wild as a shrike could be. On the open ground, a few scattered pairs of Horned Larks (*Otocoris alpestris enertera*) were present. In the shallow water near the shore of the islands, a single female Bufflehead Duck (*Charitonetta albeola*) was swimming and Red-breasted Mergansers (*Mergus serrator*) were fairly common. The latter were paired off in preparation for their northern flight soon to take place. A lone California Gull (*Larus californicus*) was seen, and a lone Coues Caspian Tern (*Hydroprogne caspia imperator*) was collected, which proved to be the only one observed in this lagoon.

By far the most interesting part of San Ignacio Lagoon, however, is another inlet that runs to the eastward. This arm is not so long nor so large as the one that extends toward the northeast; and its shores, with their many sloughs, are heavily overgrown with mangroves. This feature stood out in marked contrast with the barren shores of the larger, northeastern arm. A study of the region revealed the fact that the mangroves were to be found only where fresh sea water was carried by the daily tides.

This dense growth gives unlimited protection to bird life, and the majority of the avian population was found to be in this part of the lagoon.

We spent part of April 11 and all of April 18 amid the sloughs in this section. Several species of the heron family were seen in the mangroves. American Egrets (*Casmerodius egretta*), Lower California Reddish Egrets (*Dichromanassa rufescens dickeyi*), and Brewster Snowy Herons (*Egretta thula brewsteri*) were represented, but not in large numbers. Black-crowned Night Herons (*Nycticorax nycticorax naevius*) and Bancroft Yellow-crowned Night Herons (*Nyctanassa violacea bancrofti*) seemed to be located in small colony groups in preparation for the nesting season. A careful search by the writer of a "colony" from which about 30 pairs of these two species (mostly Black-crowned) had been flushed, failed to reveal anything but half a dozen old nests amid the mangroves.

Frazar Green Herons (*Butorides virescens frazari*) were located in pairs about the small sloughs that twisted in and out through the mangrove swamps. When flushed they did not fly far, but sought a nearby perch, usually on the top of a mangrove, where they resented the intrusion upon their domain by spreading up their neck and crest feathers and uttering a number of very discordant, hoarse croaks. No evidence of nesting was found at the time of our visit, nor was there any indication of nesting activities soon to take place when the specimens collected were dissected.

Mangrove Warblers (*Dendroica bryanti castaneiceps*) were likewise found in isolated pairs and gave evidence of early nesting by their singing and by the condition of the sex organs of the specimens collected. This warbler was one of the most interesting species observed. The song of the male was usually delivered from a hidden position amid the dense mangroves, though occasionally the bird was seen perched on a dry twig projecting above the level tops of the thicket. The song was pleasing in tone, and of good volume, suggesting that of the Yellow Warbler, but less shrill. Unlike the song of the Yellow Warbler, it was given with a steady rising inflection. The alarm note is a sharp chirp, audible at some distance even during a brisk wind. This note is uttered at intervals and always in the same tone, much as are the chipping notes of the Orange-crowned Warblers. In searching for food, Mangrove Warblers resemble others of the genus *Dendroica* in their habit of searching each leaf and stem with the most careful scrutiny. At times, however, they were seen to launch forth into the air, in true "flycatcher" fashion, after small insects. These aerial sallies were seldom for a distance of over 10 feet, and the bird nearly always returned to the same perch from which it started.

Growing like green glades among the mangroves, over the wetter portions of the marshy area, a species of cord grass (*Spartina*) was found. This plant is not uncommon in all our coastal salt marshes, and in San Ignacio, as elsewhere, was found to be always in the wash of the tides. Through this growth, Abrejos Large-billed Marsh Sparrows (*Passerculus rostratus halophilus*) and Belding Rails (*Rallus beldingi*) were common. The habits of the rails were not unlike those of their near relatives, found in the marshes in California, with the exception that they were very willing to flush. They seemed to depend for safety a great deal on their slow, short, unsteady flights and resorted to this mode of escape whenever they were approached, even in the dense cover of the rushes. The collection of a good series of specimens was thus easy. An explanation of this unusual habit might be found in the presence of a large population of coyotes that sought their food in these marshes. Coyotes were so abundant that well-beaten trails were to be found almost everywhere, and the most direct and easiest way through the mangroves was always over a coyote trail.

The greatest numbers of Louisiana Herons (*Hydranassa tricolor ruficollis*) were found about the tide pools bordered by the rushes and it was from one of these pools,

also, that on April 11 the writer shot a single immature White Ibis (*Guara alba*)—the only one seen by him in the lagoon—as it flushed with a flock of 20 Louisiana Herons. Included in this assemblage, also, were three American Bitterns (*Botaurus lentiginosus*).

As the tides receded, vast mud flats were laid bare and upon these myriads of shore birds were found. These included great flocks of Marbled Godwits (*Limosa fedoa*), Long-billed Dowitchers (*Limnodromus griseus scolopaceus*), Red-backed Sandpipers, Least Sandpipers (*Pisobia minutilla*), Western Sandpipers (*Ereunetes mauri*), and, in lesser numbers, Long-billed Curlews (*Numenius americanus*), Hudsonian Curlews (*Phaeopus hudsonicus*), Western Willets, Greater Yellow-legs (*Totanus melanoleucus*), and Sanderlings (*Calidris alba*). In fact, the writer had never before in his lifetime seen such countless throngs of shore birds. Belding Plovers (*Pagolla wilsonia beldingi*) and Western Snowy Plovers (*Charadrius nivosus nivosus*) were found in limited numbers.

A bunch of about 200 Black Sea Brant (*Branta nigricans*), discovered feeding on a point, April 18, swam away in stately array as our motor skiff approached. At this same spot, nine Bonaparte Gulls (*Larus philadelphia*) were seen, part of their number performing the characteristic hovering flight over those resting on the mud. I was informed by Captain Seely that, on his fishing trips to this lagoon during the winter time, Black Sea Brant and most of the common ducks are to be found in enormous numbers, and that Pacific Man-o'-war-birds (*Fregata minor palmerstoni*) are not uncommon at that season.

On the more elevated parts of the marsh, reached only by the highest tides, a different type of vegetation prevailed. Here a scattered growth of *Salicornia* was interspersed with a rank carpet of *Monanthochloe*, and in this growth the Marsh Sparrows built their nests. Several Western Willets were found in this association on April 18, and at the writer's approach two of the birds set up such a clamor, flying close overhead and calling in a plaintive voice, much as do Killdeers, that an hour was spent carefully searching all promising spots for the bare possibility of a nest. None could be found, though the birds did not leave the locality; their activities were probably merely pre-nuptial manifestations. At this same time a lone American Duck Hawk (*Falco peregrinus anatum*) was observed rapidly flying over the marsh in search of prey. It was not an uncommon sight to see American Ospreys (*Pandion haliaëtus carolinensis*) searching the larger streams and channels of the bay for food.

#### POND LAGOON

Pond Lagoon is the most westerly of the three lagoons situated in the Southern Vizcaino Desert group, and its entrance lies about 8 miles west of Abreojos Point. The period between April 13 and April 17 was spent in this lagoon.

The entrance is decidedly dangerous and, according to Captain Seely, has been navigated by very few mariners. The channel is narrow, in some places less than 100 feet wide, with extremely shallow water on the bar. At the time of our entrance, we had less than two feet of water under the keel of the boat and, had not conditions been entirely favorable, the passage could never have been made.

This lagoon is a long estuary about 8 miles in length and not over a mile at its greatest width. It parallels the ocean shore in a southeasterly direction and the upper reaches lie just back of Abreojos Point. The southern shore is composed entirely of wind-blown sand and is devoid of vegetation, while the northern shore harbors large mangrove thickets interspersed with glades of *Spartina* grass. The mangroves do not extend along the entire northern shore line, but grow only as far as fresh sea water reaches them with each tide, a distance of approximately 6 miles. The extreme eastern

end of the lagoon is not broken up into many small sloughs as is shown on the chart (No. 1294, Hydrographic Office, U. S. Navy) but there is one large slough that winds about, snake-like, through a *Salicornia* marsh. At the time of our visit, this marsh looked as green and level as a new lawn. Several stately American Egrets were seen here and their presence left a mental picture never to be forgotten. This marsh is the locality where, on April 19, 1897, R. C. McGregor took the type and series of his *Ammodramus halophilus* (Auk, xv, 1898, pp. 265-267) and hence was of particular interest to the writer.

The close proximity of this quiet body of water to the ocean attracted many species of birds that were not found in San Ignacio Lagoon. Thus, we found Southern Western Gulls (*Larus occidentalis wymani*), Farallon Double-crested Cormorants (*Phalacrocorax auritus albociliatus*), California Brown Pelicans, Royal Terns and Coues Caspian Terns visiting this body of water daily in small numbers.

Great flocks of shore birds were present, the same species being represented as were listed for San Ignacio Lagoon. Ducks were also there in flocks, the largest number being Lesser Scaup Ducks (*Nyroca affinis*), of which fully 2000 were divided in two flocks. A small flock each of American Pintail Ducks (*Dafla acuta tzitzihoo*), Surf Scoters (*Melanitta perspicillata*), and Canvas-back Ducks (*Nyroca valisineria*) was noted, and Red-breasted Mergansers were as abundant as they were at San Ignacio Lagoon. Incidentally, Black Brant were missing, though the place seemed well suited to their needs. Many American Eared Grebes (*Colymbus nigricollis californicus*) were seen and one became tangled in the fishing net on April 13 when we were seining a mullet "hole."

As the writer was tramping over the sand spit that divides the lagoon from the ocean, on April 14, a lone American Pipit (*Anthus rubescens*) was noted, and half a dozen Frazar Oyster-catchers (*Haematopus palliatus frazari*) were seen at rest above the wash of the waves on the ocean shore. On the lagoon side, an occasional California Least Tern (*Sterna antillarum browni*) flew past, hovering now and again to drop upon a fish.

The mangroves in Pond Lagoon were exceptionally interesting. This locality marks the most westerly point of their growth on the American continent and also the northern limit reached by mangroves on the Pacific side of the Lower California peninsula. Amid this growth, Mangrove Warblers and Frazar Green Herons also find the northern limit of their range. Belding Rails were abundant, though the larger herons were not as common as they were found to be in San Ignacio Lagoon. The much smaller area of mangroves was, no doubt, the determining factor. Several Great Blue Herons (*Ardea herodias* subsp.?) were seen, but they were far too wary for the securing of specimens, and their identity remains unknown. During the late afternoon of April 16, the writer shot a Virginia Rail (*Rallus virginianus*), but was not successful in retrieving the specimen. The bird flushed very close and was dropped in a dense growth of marsh grass. Several Western Belted Kingfishers (*Megaceryle alcyon caurina*) lived about the sloughs in Pond Lagoon and were seen almost daily during the stay. It might be added that both Northern Turkey Vultures (*Cathartes aura septentrionalis*) and Western Ravens (*Corvus corax sinuatus*) were abundantly seen about both lagoons throughout the trip.

Altogether fifty-seven species of birds were recorded in the localities of the two lagoons, the first, incidentally, being the same as the last, namely the Parasitic Jaeger (*Stercorarius parasiticus*). One of these birds flew past the boat when it was off Abrejos Point on April 10, and again, as the party was on the ocean, returning north on April 19, a lone individual was observed just off the entrance to Pond Lagoon.

San Diego, California, June 2, 1927.