

OBSERVATIONS OF ELEGANT TERNS AT SAN DIEGO, CALIFORNIA

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PRIOR to 1951 known occurrences of the Elegant Tern (*Thalasseus elegans*) in the United States were few, based on erratic wanderers from their nesting grounds along the Gulf of California in Mexico. Since 1951 records have shown that this tern has become regular and common on the southern California coast during the post-breeding season.

Occurrence of large numbers of this bird in southern California was first reported by Robert Pyle and Arnold Small (1951. *Audubon Field-Notes*, 5:308-309), who recorded 1100 individuals at Playa del Rey, Los Angeles County. There have been subsequent reports of Elegant Terns from this general area, but none exceeding 250 individuals.

The following article is based on observations of this tern on San Diego Bay, San Diego County, California, during the summer and fall seasons of 1953, 1954, and 1955.

METHODS

Observations during 1953 and through mid-August in 1954 were periodic, averaging about one every two weeks. However, from August 15, 1954, through the remainder of 1954 and through the 1955 season until September 1, daily studies were conducted at the U.S. Naval Training Center, San Diego. The Training Center is located at the northern tip of San Diego Bay and is one of the several concentration points for terns on the bay. Studies conducted there averaged about 45 minutes daily, and were made with good back or side lighting at a maximum range of 250 feet, usually much less. The data obtained there were supplemented by weekly observations on terns at other points on the bay, especially at the other known concentration points.

OCCURRENCE

I first encountered the Elegant Tern on September 21, 1953, among terns concentrated on the west side of San Diego Bay. This west border of the bay is a strip of land connecting Coronado, California, with the mainland to the south, and this particular tern concentration is situated on the south rim of the U.S. Naval Amphibious Base. More than 1000 terns were present on this date, and over one-half were Elegant Terns. The remainder were principally Forster's Terns (*Sterna forsteri*), with a small number of Common Terns (*Sterna hirundo*), Caspian Terns (*Hydroprogne caspia*), and Royal Terns (*Thalasseus maximus*).

After October 1, 1953, most of the Elegant Terns disappeared from this area, but scattered individuals were noted at many points along San Diego Bay until October 28.

In 1954 the Elegant Terns were first observed on July 18, when a group of 18 birds appeared on an exposed mud flat at the southern tip of the bay. Further observations during 1954 were impractical on my part until August 15, at which time I discovered the large concentration of terns on the U.S. Naval Training Center. On this date approximately 400 Elegant Terns were present, with a smaller number of the other four terns with this group. Virtually all detailed study of plumage, voice and behavior is based on observations of this concentration at the Training Center.

Continuing study of the group at the Training Center in 1954 showed an increase in number of individuals from 400 to a maximum of 600 on September 26. On this date I made another check of the group at the Amphibious Base and found well over 700 Elegant Terns there. The total number of Elegant Terns on the bay on this date was estimated at 1500 birds, and is a peak number for the entire three-year period of study. Numbers declined rapidly thereafter, leaving only 275 at the Training Center on October 2, 20 on October 31, four on November 22, and two on December 1, the latest recorded in 1954.

Prompted by the rather astounding numbers of these terns in 1954, I decided to make a very close study of the Training Center concentration in 1955, to determine fluctuations in the population and to study closely the behavior of these terns, very little having been done on this species in the past.

Two adult Elegant Terns in breeding plumage, a truly beautiful sight, appeared among the nesting Caspian Terns on the southern end of the bay on June 18, 1955. This marks the earliest occurrence in this country and indicates the possibility of nesting here in the future. However, as mentioned in Bent (1921. *U.S. Nat. Mus. Bull.*, 113:220), the known egg dates of this bird are for early April, so the probability at present is small.

Small numbers of Elegant Terns began to appear at various points on the bay after July 2, and the first individual appeared at the Training Center on July 16. A very gradual buildup of numbers took place at the Training Center, reaching 60 terns on August 18. A definite influx then began, reaching 149 by August 26 and a maximum of 294 on September 1, the final day of observation by the writer in 1955.

On September 1, a complete survey of the bay was made, and the estimated number of Elegant Terns was placed around 700 birds. This is slightly below the total for the same time in 1954.

C. H. Channing, of San Diego, informed me (*in litt.*) that three Elegant Terns remained at the Training Center until January 2, 1956. This is by far the latest occurrence ever recorded in this country.

PLUMAGE

In breeding plumage there is probably no more spectacular a tern than

the Elegant. The rosy underparts and orange-red bill set it apart from any other tern. The only birds observed in full breeding plumage were the ones seen on June 18 and on July 2, 1955.

All adults after July 2 appeared in various plumage stages from partial breeding to full winter. This transition is marked by the molt of the black forehead feathers and subsequent replacement with white, as in the Royal Tern and Cabot's or Sandwich Tern (*Thalasseus sandvicensis*), and the disappearance of the rosy bloom on the underparts. The former occurs first, with birds on July 18 with much white on the forehead. By August 5, at least 50 percent of the birds at the Training Center possessed completely-white foreheads (this white extending back on the top of the head just behind eye, as in the Cabot's Tern, but not as far back as in the Royal). By August 14, only 5 per cent of the adults were not in complete winter plumage, as far as the forehead goes. On the other hand, many individuals retained their rosy bloom into early September, the last bird on which it was discernible in the field being observed on September 7.

Once the rosy bloom has disappeared, the birds are not as easily distinguished in the field. If one consults present-day field guides, passages such as "similar to Royal Tern, but smaller," or "one should not attempt to distinguish this species until he knows the Caspian and Royal completely" are encountered. This is not of much help to the field observer and it is not a true picture of the situation, for the Elegant Tern is distinguished from the two larger terns much as the Cabot's Tern is along the Gulf of Mexico, with the exception of bill color.

In addition to smaller size, the Elegant is slimmer, more graceful in flight, and usually has a more rapid wing-beat. As in the Cabot's Tern the proportionately-slim bill is noticeable, although the color in the Elegant Tern parallels that of the Royal. The most distinctive field character is the crest, which is longer and more extensively black than that of the Royal. When the tern is at rest the crest feathers tend to lie down along the nape unless ruffled by the wind or erected by the birds. But the crest of the Royal Tern is shorter and tends to remain erect even when the bird is resting. Further, the black of the crest begins at a point just above the eye in the Elegant, and is not intermixed with white feathers, while in the Royal Tern the white feathers of the forehead extend much behind the eye and usually intermix with the black feathers of the crest, giving a grayish appearance to the crest. I use the term "usually" here because this crest character is not evident in Royal Terns of the coast of the Gulf of Mexico, but is evident in all the Royal Terns of the Pacific coast which I have observed or examined.

The primaries of the Elegant Tern normally show more black above than the Royal, but this is not a reliable character, especially in immature birds.

Color variation of the bill of Elegant Terns is much greater than in either the Royal or Caspian Tern. Adult Royal Terns have orange-red bills, adult Caspians have carmine-red bills, the variation in these colors among individuals being very slight. On the other hand, the Elegant Tern's bill varies from a light yellow-orange to a deep orange-red, the most frequent condition being orange-red as in the Royal. In immatures there is an even greater variation, as is discussed later.

The most remarkable feature of the coloration that I observed was the foot color. The normal foot color (in about 90 per cent of the adults) is black, as in all other terns. However, about 10 per cent possess *bright orange* feet and legs. I first noticed this odd foot color in late August, 1954, at the Training Center. A close check revealed at least fifteen individuals with completely orange feet and legs, and another ten with partially orange feet and legs. In no other way were these birds different from typical black-legged adults. To my knowledge, there is no mention in the literature of this color variation.

Orange-legged adult Elegant Terns again appeared at the Training Center in August, 1955. Since collecting is out of the question there, color photographs were secured of several of these orange-legged adults. Although somewhat unsatisfactory, due to the distance involved, these photographs are sufficient to show the foot color.

The immature plumage, with the exception of bill and foot color, is similar to that of the Royal Tern. It differs from the adult in the presence of dark coloring in the secondaries, upper wing coverts, and rectrices. However, this dark coloring is not as pronounced as in Royal Tern immatures, and in a few immature Elegants is barely discernible.

Foot and bill colors are quite variable in immatures, but generally run paler than in adults. Typical immature bill color is yellow (about 60 per cent of immatures observed), ranging from a pale straw color to light orange-red. Foot color is usually greenish or greenish-black (about half the birds observed), ranging from bright yellow-orange to black.

Very few immatures and none of the adults possessed dusky-tipped bills, in which cases the dusky was restricted to the very tip. All Elegant Terns observed, immature or adult, had bills appearing totally yellow or orange at a moderate distance.

The remainder of the immature plumage, including head feathers and crest, is similar to the adult winter plumage.

VOICE

The voice of the Elegant Tern is distinctive, if one is familiar with that of the Royal Tern. It is higher pitched and less harsh, a rather clear *ke-e-e-r*, dropping very slightly in pitch toward the end. Of course, it is

totally unlike the grating, low-pitched *kra-a-ak* of the Caspian, or the *kri-i-ick* of the Cabot's.

Both adults and immatures are also very noisy when sitting in flocks. The sound emitted from a flock of 100 birds sounds very much like a hatchery, with myriads of baby chicks constantly peeping. I have heard groups of Royal and Cabot's terns produce a similar sound on the coast of the Gulf of Mexico, but it is not quite so chick-like in these two terns. This sound is usually given incessantly by a group of Elegant Terns, and often an observer is unaware of the noise, for it is high-pitched and constant; this situation is much the same as arises with large flocks of Cedar Waxwings (*Bombycilla cedrorum*) producing high-pitched notes near the upper limit of human hearing range.

The peeping sound is given most notably by immatures begging for food, or by adults engaging in residual nesting activity, as discussed later.

In regards to voice, it might be well to mention here that I have noted Caspian Terns in flight emitting a high-pitched *pe-e-e-e*, drawn out and on the same pitch. I believe only immature Caspian Terns do this, but I am not positive of this. I am unaware of reports mentioning any high-pitched sounds of this nature by Caspian Terns.

BEHAVIOR

The Elegant Tern was observed feeding most commonly in quiet waters of lagoons or along the shores of the bay, rather than out in the rougher open water of San Diego Bay. Most observations of feeding at the Training Center indicated that the birds flew along at heights of from two to ten feet above the water, then plunged down after small fish. When feeding in this manner, Elegant Terns have a rapid wing-beat and hover often, much as the Forster's Terns do. In fact, if one is down-sun from the birds or directly behind them, it is easy to mistake the Elegant for a Forster's. However, when not engaged in feeding, the wing-beats are slower and the birds can be mistaken for Royal Terns if no size comparison is available and the head and bill cannot be seen in profile.

While at rest the Elegants normally concentrate in large groups, although scattered individuals among a mixed flock of terns may be the case. It is in these large groups that the residual nesting activity occurs. This phenomenon was also observed by Pyle and Small (*op. cit.*) and recorded as such, but not described.

Immatures continue begging for food, and have been noted doing so into late November. Begging is accomplished exactly as in the Royal Tern. The immature bird, upon arrival of an adult with food, lowers its head, thereby erecting the crest feathers, chases the adult with head low and slightly uptilted, and peeps continuously until fed.

Activity, which could only be residual courtship activity, was also observed among the adults as late as October 15, 1954. Usually three adults took part at once, but occasionally only two birds participated. These terns would run along side by side for a few feet, with their wings extended down and away from the body anteriorly, but with the tips still crossed over the back. The neck was stretched upward as far as possible during the performance and the bill alternately raised and lowered from the horizontal up to an angle of about 75° and back to the horizontal. Each time the bill was elevated to the high angle, the peeping sound was given. It should be pointed out that the two or three birds taking part in each activity normally raised and lowered their bills in unison, or very nearly so.

I noticed that the Elegant Terns would sleep, or at least close their eyes, while in a position of rest commonly observed in other terns. That is, they would rest on their bellies with their heads stretched forward and their bills lying flush with the ground.

Bathing by Elegant Terns in shallow water was also observed at the Training Center.

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