

## BREEDING BIRD RECORDS FROM MONTAGUE ISLAND, NORTHERN GULF OF CALIFORNIA

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Early in this century, Leopold (1949) described the Colorado River delta as a wild majestic paradise for wildlife. Since Leopold's day, the river has been broken up by dams to sustain agricultural and urban development. Despite the area's previous importance to wildlife, little research has been done there. We know of only a few old works on the ornithology of the area (Murphy 1917, Price 1899, Stone and Rhoads 1905). Therefore, from 0940 to 1200 on 5 June 1991 we made a preliminary reconnaissance of the birds of Montague Island, in the Colorado Delta, Baja California (Figure 1). We focused our effort on Estero del Chayo, a channel cutting into the southern part of Isla Montague. The island is formed by river sediment and has a simple vegetation consisting of saltgrass (*Distichlis palmeri*) on the banks adjacent to the channels of the estero. Away from the channels, unvegetated dry mudflats dominate. There is an extensive mudflat south of the island.

We observed the following breeding or possibly breeding birds:

Black-crowned Night Heron (*Nycticorax nycticorax*). We saw about 40 adults on saltgrass patches on the eastern bank of Estero del Chayo. They were distributed in pairs, but we were unable to survey the area and see if they had nests, as we suspected.

Great Blue Heron (*Ardea herodias*). We saw one adult and one immature standing on the east bank of Estero del Chayo. The presence of an immature suggests breeding in the area.

Snowy Egret (*Ardea thula*). We estimated at least 100 nests with eggs, in a mixed colony with Laughing Gulls (see below). The nests were platforms of dry saltgrass twigs placed over flattened saltgrass on the edge of the banks of the channels. The average clutch size was 3.1 eggs (range 1–6;  $n = 84$ ). Within a cluster of nests, the distance between nests of this species varied from 0.5 to 1 m. Minimum distance between a gull's nest and an egret's nest was 0.5 m.

Although van Rossem (1945) considered that northern Gulf records of the Snowy Egret were probably of wintering and postbreeding individuals, there are actual breeding reports for the Colorado River delta area (Bancroft 1927, Mora 1989, Wilbur 1987), the Rio Hardy area, (Stone and Rhoads 1905), the lower Colorado River and Imperial Valley (Garrett and Dunn 1981, Rosenberg et al. 1991). Murphy (1917) reported no nesting of the birds, but he learned of their being hunted for their nuptial plumes, which were later smuggled across the international frontier.

Laughing Gull (*Larus atricilla*). We found a breeding colony of Laughing Gulls, together with the breeding Snowy Egrets, along the east bank of Estero del Chayo. The nests were round bowls made of dry saltgrass twigs and placed among the saltgrass. We counted 60 nests. The mean clutch size was 2.68 eggs (range 1–3;  $n = 46$ ). We saw one nest with two and another with three live chicks. One nest had one dead chick. Average intracluster distance between nests of gulls was 7 m (range 3–11;  $n = 10$ ).

On the Pacific coast, this species breeds in Sonora and Sinaloa (AOU 1983). It bred at the Salton Sea from 1928 (Miller and van Rossem 1929) to 1957 (Garrett and Dunn 1981). Van Rossem (1945) reported that the species was common in late

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spring and early summer in the coastal lagoons from Guaymas southward. Friedman et al. (1950) indicated that it was common in late spring, about to breed, in Sonora, but reported actual breeding only in Sinaloa and Nayarit, on the Pacific coast. Neither Wilbur (1987) nor Everett and Anderson (1991) reported this bird as a breeder in the area. Our record is the first report of this species breeding in both the upper Gulf of California and in the state of Baja California.

Elegant Tern (*Sterna elegans*). A few were feeding at the mouth of Estero del Chayo, and several were flying over the nesting colonies of Laughing Gulls and

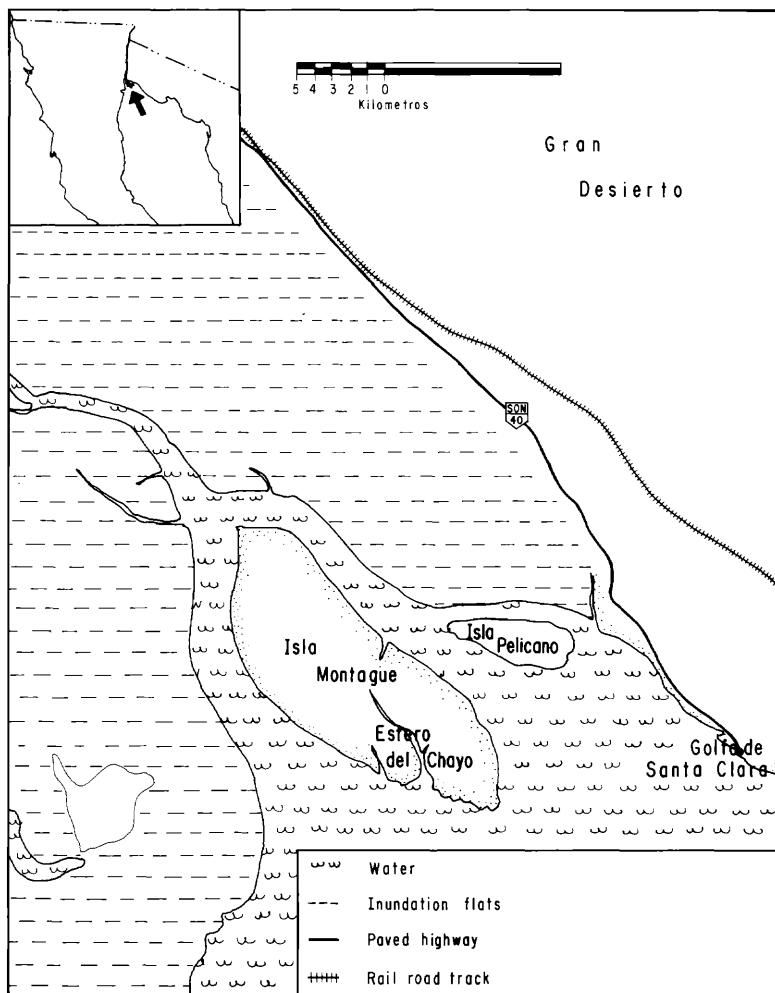


Figure 1. Estero del Chayo, Isla Montague, Baja California.

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Snowy Egrets. These terns were defending the site, together with the gulls. This defense behavior is associated with breeding (Bent 1921), but we did not find any tern nests.

Least Tern (*Sterna antillarum*). We saw five individuals carrying fish at the mouth of Estero del Chayo. This behavior might represent the feeding of young by adults (Massey 1974). Considering this activity, the habitat, and the time of the year, we suspect that the species nests at this location, but were unable to verify this because of the low tide and the large size of the mudflats. If so, this record would add to the list of the species' known breeding sites.

The birds of the area face some environmental threats, summarized by Everett and Anderson (1991). Although eggging was formerly practiced at Isla Montague, at present it seems to be done no longer, according to local informants and our field observations. Eggging or other human disturbance could easily resurge, however, especially in view of the intensive clam gathering on the mudflats, close to the nesting sites. Also, the area receives some fresh water from the Colorado River, which includes pesticide-laden agricultural runoff. Pesticide accumulations have been detected in marine invertebrates of the upper Gulf of California and the valley of Mexicali (Gutierrez-Galindo et al. 1988). Studies on birds in the upper Gulf have revealed low levels of a wide variety of contaminants, some of which might have harmful effects on some species. Our preliminary observations indicate a need for further study of the distribution and temporal fluctuations of birds in this area, and of the threats to them.

"Chino" Tapia kindly took us to the island. Dan Anderson and Bill Everett carefully reviewed this paper. Philip Unitt greatly assisted in obtaining information and editing the article.

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*Accepted 25 August 1991*