

NESTING WATERBIRDS ON ISLAS SAN MARTIN AND TODOS SANTOS, BAJA CALIFORNIA

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ABSTRACT: A survey of Isla San Martín on 2 June 1999 revealed about 30 Brown Pelican, 600 Double-crested Cormorant, and over 300 occupied Western Gull nests, plus a mixed pair of oystercatchers. Thus the Double-crested Cormorant has reoccupied what was once its largest colony in North America. Surveys of Islas Todos Santos on 3 June 1999 and 27 March 2000 revealed 115 Double-crested Cormorant and at least 184 occupied Brandt's Cormorant nests, plus about 1400 nesting pairs of Western Gulls. On Todos Santos, at least two nests of the Pelagic Cormorant represent a southward extension of that species' breeding range, whereas two nesting pairs of the Reddish Egret represent a northward extension.

During the late 1960s and early 1970s several fish-eating bird species experienced decreases in breeding success, and hence severe population declines, due to eggshell thinning caused by organochlorine ingestion (Keith et al. 1971, Risebrough et al. 1971, Jehl 1973, Anderson et al. 1975, Anderson and Gress 1983, Gress 1995). After use of DDT was curtailed in the early 1970s some species, like the Brown Pelican (*Pelecanus occidentalis*), started to recover in the late 1970s (Jehl 1984, Anderson et al. 1996).

Despite the reduction in organochlorine pollution, human disturbance on islands still threatens seabird nesting colonies in northwestern Mexico (Anderson and Keith 1980, Anderson 1988). Human disturbance on islands has increased steadily as tourism, scientific and educational expeditions, sport-fishing, outdoor activities, and commercial harvest of marine resources have developed (Velarde and Anderson 1994). Since people visit islands that are near shore more often than distant ones, continuous human-induced effects are expected to be greatest on islands closest to the mainland (Burger and Gochfeld 1994). On islands, human disturbance usually occurs close to fishing camps and/or landing sites. The extreme sensitivity of Brown Pelicans and cormorants to human disturbance can limit the available suitable nesting habitat for these birds (Anderson 1988, Everett and Anderson 1991).

At least since 1913 (Wright 1913), and until the late 1960s (Jehl 1973), Isla San Martín supported a large mixed colony of Brown Pelicans, Double-crested Cormorants (*Phalacrocorax auritus*), and Brandt's Cormorants (*P. penicillatus*). Indeed, the breeding colony of Double-crested Cormorants was considered the largest in North America (Gress et al. 1973, Everett and Anderson 1991, Carter et al. 1995). Disturbance by tourists has been suggested as the major factor in the demise of the seabird colonies on this island (Anderson and Keith 1980, Jehl 1973, 1984).

The objective of this note is to contribute to the knowledge of the status of nesting waterbirds on islas San Martín and Todos Santos by reporting our observations during visits to each island in June 1999. San Martín was surveyed on 2 June, Todos Santos on 3 June. Our trip was aboard the trimaran

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Alguita, of the Alguita Foundation. An additional visit to Todos Santos was made on 27 March 2000.

SPECIES ACCOUNTS

Brown Pelican (*Pelecanus occidentalis*)

San Martín: Wright (1913), first, reported "nesting in considerable numbers on the southern shores" of the island. During a boat survey clockwise around the island, we counted 30 Brown Pelicans nesting on the northwestern side of the island. They were in two groups along the edge of sand dunes, among Double-crested Cormorants. From the ground, we observed five additional nests among a subcolony of 200 Double-crested Cormorants nearby. The pelicans on the latter nests were incubating, as evidenced by their red gular pouches; one pelican was observed turning eggs. One individual was a subadult (3 years old; Schreiber et al. 1989). Nesting here was late in comparison with that at pelican colonies in the Gulf of California, several of which had large young at the same time as our Pacific islands survey (pers. obs.). The presence of at least one subadult and the lateness of eggs suggest that this colony might be of recent establishment or is still growing. As we could not make a later visit, we were unable to gauge the colony's productivity. In May 2000 there were several thousand Brown Pelicans on San Martín, and several nests, some of them with eggs, were visible from a distance, (J. A. Sánchez-Pacheco pers. comm.).

Todos Santos: Pelicans nested here in the past (Howell 1912, Van Denburgh 1924), but there are no recent records (Everett and Anderson 1991). We saw only a few nonbreeding individuals flying around both Todos Santos islands.

Double-crested Cormorant (*Phalacrocorax auritus*)

San Martín: Wright (1913) estimated close to 350,000 nests here. Although this figure is likely an overestimate (Carter et al. 1995), the colony was certainly the largest of this species in North America. The breeding area, Wright wrote, "reaches inland a half mile on all sides." In 1969 and 1971 the colony numbered approximately 5000 and appeared to have no reproductive problems (Gress et al. 1973). In 1987 and 1988 Everett noted "up to a dozen recently completed but unoccupied nests on the west side of the island" (Everett and Anderson 1991) and suggested this colony was nearly, if not totally, abandoned. A few dozen Double-crested Cormorants were nesting on the western side of the island 7–9 July 1989 (Mellink pers. obs.). Carter et al. (1995) considered the colony abandoned.

We found 600 occupied cormorant nests, all on the western side of the island, in the same area as in 1989. This is an area of sand dunes, in which most of the nests were on frutilla (*Lycium* sp.) shrubs, although some nests were on the bare ground. We estimated at least 800 unoccupied ancient and abandoned cormorant nests at higher elevations, within the same area.

Todos Santos: These islands have been used continually by Double-crested Cormorants since, at least, the turn of the 20th century (Howell 1912, Van Denburgh 1924, Everett and Anderson 1991, Mellink and Palacios unpubl. data). In 1999 we found 115 occupied nests, more than in the late 1970s and early 1980s (Everett and Anderson 1991). Most of the nests had eggs, some had chicks (3 nests with 2 chicks, 1 nest with 3 chicks). We counted a total of 150 adults and young at the nesting site.

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Brandt's Cormorant (*Phalacrocorax penicillatus*)

San Martín: On his visit, on 5 July 1913, Wright (1913) reported "several thousand Brandt's cormorants, which had left their nests and were standing around in droves." On 18 February 1977, K. Garrett (pers. comm.) noted an inactive "dense colony of old cormorant nests atop *Lycium* shrubs on north slope of volcano," and Everett and Anderson (1991) considered the large colony abandoned. We found no evidence of current breeding on the island.

Todos Santos: Nesting has occurred here for at least 90 years (Howell 1912, Van Denburgh 1924, Everett and Anderson 1991). We estimated at least 184 occupied nests, mostly with eggs, but nine had chicks. We counted 435 adults and young at the nesting sites. Nesting was restricted to sea-facing cliffs and rocks offshore.

Pelagic Cormorant (*Phalacrocorax pelagicus*)

Todos Santos: On 27 March 2000 there were at least two Pelagic Cormorants on nests on Todos Santos' northern island. They were near the top of the cliffs that fall to the sea on the northeastern side of the island. Pelagic Cormorants have nested on this island probably for many years, as they were recorded on 10 April 1967 (Jehl in Wilbur 1987), 12 February 1977, and 4 February 1979 (Garrett in Wilbur 1987). Regarding the 10 April 1967 record, J. Jehl (in litt. to Richard Erickson) states "saw 10–15 Pelagic Cormorants but found no nests. So late in the year, however, that they were probably there somewhere." This island is the southernmost known breeding locality for this species.

Brown Booby (*Sula leucogaster*)

Todos Santos: On 27 March 2000 there was one male Brewster's Brown Booby (*S. l. brewsteri*) displaying courtship behavior among several Western Gulls. Brown Boobies have been found on other occasions in the area. Ron LeValley (in litt. to Richard Erickson) saw three Brown Boobies at Todos Santos on 27 January 1993. In April 1999, six Brown Boobies were reported on Islas Los Coronados off Tijuana (McCaskie 1999).

Reddish Egret (*Egretta rufescens*)

Todos Santos: We observed two pairs engaged in breeding activities on the southern island. The four individuals were in breeding plumage, and two of them (presumably the males) were carrying nest materials to their mates, which were building nests. One pair was also performing courtship displays. Nesting substrate was Velvet Cactus (*Bergerocactus emoryi*) mixed with Lemonadeberry (*Rhus integrifolia*), about 20 meters from the nearest Western Gull (*Larus occidentalis*) nest. On 27 March 2000, two Reddish Egrets were standing on the same bushes of the 1999 nesting.

No previous record of this species exists for the island (Kaeding 1905, Howell 1912, Van Denburgh 1924). Indeed, Wilbur (1987) indicated that on the western coast of Baja California it is an uncommon resident south of Guerrero Negro, being found only occasionally north into Upper California. Grinnell (1928) and Massey and Palacios (1994) listed San Quintín as the most northerly location for this

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species' residency along the Pacific coast of Baja California. Von Bloeker and Harter (1928), however, reported a Reddish Egret in the midst of a Brown Pelican colony on Islas Los Coronados on 6 May 1928. Presumably no one considered that this individual could have been nesting.

American and Black Oystercatchers (*Haematopus palliatus* and *H. bachmani*)

On the Pacific side of Baja California, including the coastal islands, the American Oystercatcher is reported to be a resident as far north as Isla San Gerónimo, whereas the Black Oystercatcher is a resident from Punta Abrejos north (Wilbur 1987). They are known to interbreed within their area of overlap (Kenyon 1949, Jehl 1985, Wilbur 1987). On San Martín we found a pair formed by one individual of each species. They behaved as a breeding pair and exhibited distraction behavior. However, we could not find a nest. Nesting by hybrid pairs has been suspected in the Channel Islands and, from the number of birds showing intermediate characteristics, must be widespread in southern California and northern Baja California (R. Erickson pers. comm.). On Todos Santos we found three pairs of the Black Oystercatcher, but we did not search for nests.

Western Gull (*Larus occidentalis*)

This is the most ubiquitous marine bird along the Pacific coast of Baja California, nesting on almost all islands (Everett and Anderson 1991, Grinnell 1928).

San Martín: We counted over 300 pairs nesting. Nesting was restricted to the western side of the island, adjacent to and above the Double-crested Cormorant–Brown Pelican colony. We examined eight nests: four had two eggs, four had three.

Todos Santos: On the southern island we estimated 2550 Western Gulls (about 1300 pairs). We estimated about 100 breeding pairs on the northern island. On the southern island we examined 35 nests: 16 had eggs, 19 had chicks. Of the nests with eggs, two had one egg, five had two, eight had three, and one had four (mean 2.5 eggs per nest). Of the nests with chicks, three had one chick, nine had two, and seven had three (mean 2.21 chicks per brood). We saw over 15 well-maintained (i.e., active) nests that were empty, suggesting that some chicks were hiding outside their nests. Some fledglings were already dispersing, and we saw one young of the year on the coast at Ensenada.

DISCUSSION

During our visit to Isla San Martín it was evident that fishing and kelp cropping were at a minimum, and only a few fishermen were living on the island. Disturbance to the western side of the island is likely to have been minimal. Although feral cat sign was abundant and widespread, cats probably do not pose a significant threat to pelicans or cormorants (Anderson et al. 1989). The large colony of Double-crested Cormorants and the presence of a breeding colony of Brown Pelicans clearly shows

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the island is capable of supporting large colonies of both these species, and perhaps Brandt's Cormorants as well. We believe that a minimum of management could ensure the health of these colonies.

What the nesting of Reddish Egrets on Todos Santos represents is a puzzle, and only further monitoring will clarify the nesting status of this species in northwestern Baja California.

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