

ORNITOLOGIA NEOTROPICAL 8: 1–5, 1997
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A LARGE AUTUMN CONCENTRATION OF SWANS (CYGNUS MELANCORYPHUS AND COSCOROBA COSCOROBA) AND OTHER WATERBIRDS AT PUERTO NATALES, MAGALLANES, CHILEAN PATAGONIA, AND ITS SIGNIFICANCE FOR SWAN AND WATERFOWL CONSERVATION

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Resumen. Aproximadamente 20.000 Cisnes de cuello negro (*Cygnus melancoryphus*) y 1.000–2.000 Cisnes coscorobas (*Coscoroba coscoroba*) fueron hallados en una gran concentración de aves acuáticas (total 30.000–35.000 individuos de 18 especies), cerca de Puerto Natales, Magallanes (XII Región), Chile, el 28 de Abril 1995 (otoño austral). Esta concentración parece ser la de mayor importancia numérica señalada en esta zona, conocida como un sitio de invernaje de aves acuáticas. Se discute las implicaciones de estas observaciones para la conservación de cisnes y otras especies acuáticas en la Patagonia.

Abstract. About 20,000 Black-necked Swans (*Cygnus melancoryphus*) and 1,000–2,000 Coscoroba Swans (*Coscoroba coscoroba*) were estimated in a large concentration of waterbirds, totalling 30,000–35,000 individuals of 18 species, near Puerto Natales, Magallanes (XII Región), Chile, on 28 April 1995 (Southern Hemisphere autumn). This seems to be the largest such concentration of swans and other waterfowl ever reported from this area, which is known as a waterbird wintering site. Implications of these observations for swan and waterfowl conservation in Patagonia are discussed. Accepted 7 December 1995.

Key words: Swans, *Cygnus melancoryphus*, *Coscoroba coscoroba*, waterbirds, Puerto Natales, Magallanes, Chile, Patagonia, autumn concentrations, conservation.

INTRODUCTION

On 28 April 1995 I observed a spectacular concentration of waterbirds, totalling 30,000–35,000 individuals, in a large complex of shallow bays at the head of Golfo Almirante Montt and at the mouth of Seno Última Esperanza, between the southern tip of Península Antonio Varas and the town of Puerto Natales, Magallanes, Chile, 51°44'S, 72°31'W (Paynter 1988: 202). The taxa censused in this concentration belonged to 18 species in 7 families: penguins (Spheniscidae, 1 species), grebes (Podicipedidae, 3), cormorants (Phalacrocoracidae, 2), flamingos (Phoenicopteridae,

1), swans (Anatidae, 2), geese (Anatidae, 1), ducks (Anatidae, 4), coots (Rallidae, 1), and gulls (Laridae, 3). I counted or estimated these birds from the bridge of the ferry boat M/N Puerto Eden, as the vessel slowly made her way toward the Puerto Natales harbor, from 12:30 to 13:00 h. Once the ferry boat was docked, the large waterbird concentration offshore was no longer visible, whether from the boat's decks or from the shore.

Additional waterbirds were present along the waterfront at Puerto Natales from 15:00 to 18:00, but in much smaller numbers than the

offshore concentration, totalling less than 1,000 individuals of 13 species: Neotropic Cormorant (*Phalacrocorax olivaceus*, about 30), Imperial Shag (*Phalacrocorax atriceps*, about 50), Chilean Flamingo (*Phoenicopterus chilensis*, about 15), Coscoroba Swan (*Coscoroba coscoroba*, about 50), Black-necked Swan (*Cygnus melancoryphus*, about 300), Upland Goose (*Chloephaga picta*, about 30), Crested Duck (*Lophonetta specularioides*, 4), Chiloé Wigeon (*Anas sibilatrix*, about 70), Yellow-billed Pintail (*Anas georgica*, about 15), White-winged Coot (*Fulica leucoptera*, about 120), Kelp Gull (*Larus dominicanus*, about 80), Dolphin Gull (*Larus scoresbii*, about 15), and Brown-hooded Gull (*Larus maculipennis*, about 40).

I describe below the waterbird concentration offshore from Puerto Natales, and discuss the significance of the Puerto Natales area in terms of numbers and conservation of swans in particular and in terms of waterbird conservation in Patagonia in general.

DESCRIPTION OF OFFSHORE CONCENTRATION

The offshore concentration of waterbirds included large to very large numbers of 6 species, estimated as follows: about 100 Great Grebes *Podiceps major*, 400–500 Neotropic Cormorants *Phalacrocorax olivaceus*, 2,000–3,000 Imperial Shags *Phalacrocorax atriceps*, 800–900 Chiloé Wigeons *Anas sibilatrix*, 4,000–5,000 coots *Fulica* sp. (too far to be identified with certainty, but likely White-winged Coots *Fulica leucoptera*), and 2,000–3,000 Kelp Gulls *Larus dominicanus*.

Ten other species were present in the offshore flocks, but in much smaller numbers: about 12 Magellanic Penguins *Spheniscus magellanicus*, 1 Silvery Grebe *Podiceps occipitalis*, 1 White-tufted Grebe *Rollandia rolland*, 50 Chilean Flamingos *Phoenicopterus chilensis*, 30 Upland Geese *Chloephaga picta*, about 15 Crested Ducks *Lophonetta specularioides*, about 10 Flightless Steamer-Ducks *Tachyeres pteneres*, 15–20 Yellow-billed Pintails *Anas georgica*, about 12 Dolphin Gulls *Larus scoresbii*, and 100 Brown-hooded Gulls *Larus maculipennis*. The most remarkable concentration of all, however, was that of the two species of swans, *Coscoroba coscoroba* and *Cygnus melancoryphus*.

CONCENTRATION OF SWANS

I estimated the number of Coscoroba Swans *Coscoroba coscoroba* at 1,000–2,000 individuals, and that of Black-necked Swans *Cygnus melancoryphus* at about 20,000 individuals. All these swans occurred in a single dispersed flock, extending over an area of water of at least 1 km x 1 km, and the other species of waterbirds were mixed among them. As mentioned above, in addition, smaller numbers of both *Coscoroba coscoroba* and *Cygnus melancoryphus* were seen along the waterfront in Puerto Natales, totalling about 200–300 *Cygnus melancoryphus* and 50 *Coscoroba coscoroba*.

Interestingly, as the ferry boat sailed toward Puerto Natales, she disturbed dozens of Black-necked Swans, all of which fled the boat's approach by labored running and flapping of wings, without taking off, much in the manner of Steamer-Ducks *Tachyeres* spp. These swans were clearly molting their wing feathers and were flightless. However, I saw several swans in flight near the waterfront at Puerto Natales, both *Cygnus melancoryphus* and *Coscoroba coscoroba*, thus indicating that not all swans were flightless. Clearly, the swans in the huge congregation offshore consisted mostly of molting birds, however. Fjeldså & Krabbe (1990: 117) stated that *Cygnus melancoryphus* „Non-breeders assemble to molt in large flocks on some large, clear lakes on Andean foothills of w Sta Cruz and Chubut“ (Argentine Patagonia). Unfortunately Fjeldså & Krabbe (1990) did not give numbers of birds.

IMPORTANCE OF PUERTO NATALES FOR SWANS AND OTHER WATERBIRDS

The Puerto Natales area, at the head of the Golfo Almirante Montt and at the entrance of Seno Ultima Esperanza, about 200 km NW of Punta Arenas, the main city of Chilean Fuego-Patagonia, is known for its concentrations of waterbirds, especially Black-necked Swans *Cygnus melancoryphus* and Chilean Flamingos *Phoenicopterus chilensis* (Markham 1971). Thus, on 25 February 1987 and 17 January 1988 (austral summer), I saw 400–700 Black-necked Swans along the waterfront at Puerto Natales, an experience shared by previous observers. Elsewhere and at other times of the year, Bernath

(1965: 97), Markham (1971), Jory *et al.* (1974), Venegas & Jory (1979: 66), and Venegas (1994) have mentioned the autumn (April–May) and winter (June–July) congregations of Black-necked Swans on the mainland of Magallanes and on the island of Tierra del Fuego. Earlier, Olrog (1948: 468) had written that he had sighted “Centenares de cisnes en migración ... en el Seno Skyring y Seno Otway, Territorio de Magallanes, en abril y mayo” (hundreds of [Black-necked Swans] swans in migration [were noted] in Seno Skyring and Seno Otway, Magallanes Territory). Seno Skyring and Seno Otway are located about 100 and 150 km, respectively, southeast of Puerto Natales toward Punta Arenas.

I believe, however, that the numbers of swans I observed near Puerto Natales on 28 April 1995 were exceptionally high, as can be gathered by comparing my estimates with those of Markham (1971), and of Blanco & Canevari (1992, 1993), which appear to be the only ones available in the literature. Thus, the five published “Censos Neotropicales de Aves Acuáticas”, 1990–1994 (Carp 1991, Blanco & Canevari 1992, 1993, 1994, 1995) either do not mention the Puerto Natales area (1990 report, Carp 1991; 1994 report, Blanco & Canevari 1995), or, when they do, cite smaller total numbers of waterbirds of all species (6,349 individuals of 14 species in 1991, Blanco & Canevari 1992; 22,162 individuals of 26 species in 1992, Blanco & Canevari 1993; 12,920 individuals of 21 species in 1993, Blanco & Canevari 1993). In 1991, 1678 *Cygnus melancoryphus* were censused in Seno Ultima Esperanza (Blanco & Canevari 1992: 30–31) and in 1992, 5,788 individuals were counted there (Blanco & Canevari 1993: 37). Numbers of Black-necked Swans were not given for 1993 (Blanco & Canevari 1994: 39), although the grand total of Black-necked Swans for Chile was 8,792 for that year, many of these birds apparently having been censused in Magallanes.

On 2 May 1970 (austral autumn), Markham (1971: 156) counted 2,608 Black-necked Swans and 22 *Coscorobas* near Puerto Natales, but no flamingos. During five days in July 1971 (austral winter), Markham (1971) carried out aerial surveys in Magallanes, in order to census swans and flamingos wintering in this province. On 30 July 1971, Markham (1971: 154, his Table 1) counted 5,566 swans and 1,022 flamingos in his

sector number 12, Ultima Esperanza, around Puerto Natales. Markham (1971) counted other large concentrations on 14 July 1971 at Lago Toro-Canal FitzRoy southeast of Puerto Natales (1,347 swans, 1,569 flamingos), and on 15 July 1971 near Porvenir in northeastern Tierra del Fuego (2,304 swans, 3,834 flamingos). Markham (1971) estimated the total number of swans in Magallanes in July 1971 at 11,204 individuals, 10,801 of which were *Cygnus melancoryphus* and 403 were *Coscoroba coscoroba*. Thus, my estimate of 20,000 *Cygnus melancoryphus* in 1995 is twice as high as Markham’s (1971) for 1971 and more than three times as high as the 1992 census reported by Blanco & Canevari (1993: 27), and my estimate of 1,000–2,000 *Coscoroba* is 2.5–5 times higher than Markham’s 1971 census. Insofar as flamingos *Phoenicopterus chilensis* are concerned, note that Markham (1971: 156) did not see any on 2 May 1970, and that I saw only small numbers on 28 April 1995 (both dates are in the austral autumn), but that Markham (1971) counted large numbers of flamingos in the Puerto Natales area in July 1971 (austral winter).

Do the higher numbers of swans I recorded in the Puerto Natales area in 1995 mean that the two species of swans have increased numerically since 1971 (and also since 1991–1993), or that there were more swans in 1995 in this part of Magallanes, but fewer elsewhere in Patagonia, than in previous years? Without further censuses, it is not possible to choose between these alternatives. Markham (1971: 151) thought that “Es muy probable que los aproximadamente 11.000 cisnes de cuello negro contados en este estudio [en Magallanes] representan la mayor parte de la población total de la especie” (It is quite probable that the approximately 11,000 Black-necked Swans counted [in Magallanes] during this study represent the main part of the total population of the species). Markham (1971: 151) also stated that the *Coscoroba* Swan was concentrated in Magallanes in winter.

STATUS OF *COSCOROBA COSCOROBA* AND *CYGNUS MELANCORYPHUS*

Whereas *Cygnus melancoryphus* seems to have healthy populations in southern South America, including several relatively large breeding concentrations in some areas of Patagonia [for exam-

ple in Parque Nacional Laguna (or Lago) de los Cisnes in Chilean Tierra del Fuego, 53°14'S, 70°22'W (Paynter 1988: 50), Jory *et al.* 1974; and in Parque Nacional Laguna Blanca, Neuquén, Argentina, 39°03'S, 70°23'W (Paynter 1985: 39), Daciuk 1968, personal observations, 1992], by contrast *Coscoroba coscoroba* seems to occur in small numbers throughout its range. In fact, Venegas (1994: 25) called the *Coscoroba* "vulnerable" in Magallanes, and "in danger of extinction" in other parts of Chile.

Glade (1988: 5) listed the *Coscoroba* Swan *Coscoroba coscoroba* as "endangered" for Chile as a whole, and (Glade 1988: 19) as "endangered" for Regions VI, X, and XI, and "vulnerable" for Region XI (Magallanes). Glade (1988: 7) gave the Black-necked Swan *Cygnus melancoryphus* as "vulnerable" for Chile as a whole, and (Glade 1988: 19) as "rare" for Regions IV and VI, "vulnerable" for Regions V, VII, and XI, and "out of danger" for Regions X and XII. In the second edition of the Red List of Chilean Terrestrial Vertebrates, Glade (1993: 19) gave the *Coscoroba* Swan as "endangered" for Chile as a whole, as "endangered" for regions V, X, and XI, and as "vulnerable" for Magallanes (Region XII). The Black-necked Swan was classified by Glade (1993: 19) as "vulnerable" for Chile, and "out of danger" for Magallanes (Region XII). The presence of thousands of swans of both species in the southern hemisphere autumn near Puerto Natales, and apparently in greater numbers in the 1990s than in the 1970s, may be cause for rejoicing, but is also good enough reason for environmental action.

CONSERVATION OF SWANS AND OTHER WATERBIRDS IN PUERTO NATALES

In spite of, or perhaps because of, the large concentrations of waterbirds, especially swans, in the Puerto Natales area, it is appropriate to consider, once again, the problem of conservation of these birds there and elsewhere in Patagonia. In Neuquén, Argentina, "La importante población de cisnes de cuello negro (*Cygnus melancoryphus*) de la Laguna Blanca, acompañada por una diversa y numerosa avifauna acuática, fue la principal razón de la creación del Parque Nacional y su rasgo más

conocido por el público" (The important [breeding] population of Black-necked Swans ... of the Laguna Blanca, together with a diverse and abundant aquatic avifauna, was the main reason for the creation of the National Park, and is its feature best known by the public) (Ramilo *et al.* 1993: 10). According to Ramilo *et al.* (1993: 10), Laguna Blanca National Park has the largest breeding population of Black-necked Swans in Argentine Patagonia. Estimates of the numbers of Black-necked Swans breeding at Parque Nacional Laguna Blanca vary from 2,000 to several thousands. Clearly, if such a concentration warranted the creation of a National Park by the Argentine authorities, the autumn and winter concentrations in Magallanes, which are one order of magnitude higher, are more than sufficient to consider similar action there by the Chilean authorities.

Markham (1971: 153) had already suggested that the three areas of major swan and flamingo concentration he had surveyed in Magallanes, including the Ultima Esperanza area near Puerto Natales, be set aside as bird sanctuaries. This idea must now be implemented. The salt-water bays of the Puerto Natales area, with autumn and winter concentrations of swans between 12,000 (in July 1971) and 22,000 birds (in April 1995), and with concentrations of several other species of waterbirds, each with 1,000 to 5,000 individuals, constitute a wetland zone of paramount importance, not only in Fuego-Patagonia, but in South America.

Interestingly, Schlatter & Espinosa's list of wetlands in Chilean Fuego-Patagonia (*in* Scott & Carbonell 1986: 127–131) did not mention the Ultima Esperanza-Puerto Natales area specifically, although it included it, but without naming it, in the large biotic zone they called "The Chilean Fjordland." If Markham (1971: 151) was right that a substantial portion of the total southern South American population of both *Coscoroba* and Black-necked Swans spend the austral autumn and winter in Magallanes, Chilean Patagonia, then the Puerto Natales area, having apparently the highest concentrations, is of crucial significance for the long-term survival of these species.

In view of the data reviewed in this paper, I strongly recommend to the authorities of the Chilean Forest Service (Corporación Nacional

Forestal, CONAF) that they establish an "Ultima Esperanza Waterbirds National Park" ("Parque Nacional Aves Acuáticas Ultima Esperanza") in the Puerto Natales area, with the specific goal of totally protecting the numerous species of waterbirds, and especially the swans, that use these shallow bays as wintering and molting areas. At present, the province of Ultima Esperanza and the comuna of Puerto Natales are only listed as National Reserves and/or National Monuments (pp. 262–263 in CONAF 1995). It is necessary to go one step further.

ACKNOWLEDGMENTS

I am grateful to the L. C. Sanford Fund for financial assistance that permitted me to carry out field work in Chilean Patagonia in 1995 and in previous years. The officers and crew of the ferry boat Puerto Eden, especially Captain Jorge Silva Aravena, greatly facilitated my observations by kindly allowing me free access to all parts of their vessel. I am grateful to an anonymous referee for useful critical comments on the manuscript.

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