PROPOSAL FOR INCLUSION OF SPECIES ON THE APPENDICES OF THE CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS

A. PROPOSAL: Listing of the Chilean populations of the black-necked swan *Cygnus melanocorypha* on the Appendix I

B. PROPONENT: **Republic of Chile** (prepared by Paulo Corti G., M.V., and Roberto Schlatter V., M.V., Ph.D, Institute of Zoology, Southern University of Chile)

C. SUPPORTING STATEMENT

1. Taxonomy

1.1 Class: Aves
1.2 Order: Anseriformes
1.3 Family: Anatidae
1.4 Genus/species: *Cygnus melanocorypha* (Molina 1782)
1.5 Common names: English: Black-necked swan
Spanish: Cisne de cuello negro
French: Cygne de cou noir

2. Biological data

2.1 Distribution

The black-necked swan is endemic in South America (Scott et al 1972, Navas 1977, Araya and Millie 1986, Canevari and Narosky 1995). It ranges from 34°S to Tierra del Fuego and the Falkland Islands (Malvinas), and as far as the Tropic of Capricorn during the migratory season (February and June) (Scott et al 1972, Clark 1986, Venegas 1994). Its range includes the following countries: southern Brazil and Paraguay (erratic), Uruguay, practically all of Argentina and part of Chile (Orlog 1984, Burattini and Escalante 1971, Scott et al 1972, Navas 1977, Meyer de Schauensee 1982, Menegheti et al 1990, Schlatter et al 1991a). The black-necked swan has been sighted in the Antarctic Peninsula, but as a vagrant species (Bennett 1922, Lazo and Yañez 1989, Parmalee and Fraser 1989, Lange and Nauman 1990, Orgeira and Fogilatto 1991), owing to macoregional climatic changes that occur periodically but irregularly in Patagonia, mainly in the form of drought (Aldridge 1989, Schlatter *et al* 1991a, Corti 1996).

In Chile it ranges from the Huasco valley (Atacama), where it is occasional, to Tierra del Fuego, with rare sightings in Juan Fernández archipelago (Drouilly 1976, Araya and Millie 1986), being more abundant in region XII (Markham 1971, Drouilly 1976, Venegas 1994).

2.2 Population

The total population of *Cygnus melanocorypha* in South America has been estimated to consist of some 100,000 individuals, mainly concentrated in Argentina (Schlatter et al 1991a). According to Rose and Scott (1994), the number has settled to between 25,000 and 100,000 individuals for the entire South American continent.

Nevertheless, the total number, or the number closest to it, is not yet known, as an extensive area, especially in Argentine and part of Chilean Patagonia, has not been surveyed for the purposes of Neotropical censuses. An important area where swans congregate and which serves as a nesting centre is San Rafael lake in region XI of Chile (Aldridge 1989), but it is insufficiently known.

2.3 Habitat

The black-necked swan inhabits very different bioclimatic areas in Chile, but these share a number of environmental features, namely: relatively protected and undisturbed bodies of shallow, continental (fresh and brakish) fresh water and sea water, with little or no current (lentic) and some eutrophication, permitting the growth of an abundant underwater plant biomass (Corti 1996).

The development and reproduction of the species are highly dependent on these environmental features, although it is found in a variety of climatic zones on account of its very extensive distribution in the Southern Cone of America (Orlog 1984, Burattini and Escalante 1971, Scott et al 1972, Navas 1977, Meyer de Schauensee 1982, Schlatter et al 1991a). Brackish lakes situated near the sea, like Lake Rocha in Uruguay, also present features similar to those described for the ecosystems of Chile. It contains shallow waters, with an average depth of 0.58 m and abundant aquatic vegetation, and on this lake 10,000 black-necked swans and 4,000 coscoroba swans can frequently be seen (Vaz Ferreira and Rilla 1991). In April 1995 Vuilleumier also observed an unusual quantity of both species of swans in the vicinity of Puerto Natales, a shallow marine environment in southern Chile: 20,000 black-necked swans and between 1,000 and 1,000 Coscoroba swans were then counted out of a total of 30 to 35,000 aquatic birds.

The habitat of the black-necked swan is therefore characterized by a shallow water environment, with a depth no more than 60 cm from the surface to the underwater vegetation, rich in nutrients so as permit the adequate growth of an abundant plant biomass of acceptable quality, fresh water allowing freedom of movement on the surface, in addition to offering protected places containing scrub vegetation and being sufficiently peaceful for nesting (Corti 1996).

2.4 Migrations and dispersions

With regard to migratory movements, the present state of research does not allow the migratory behaviour of the species to be established with certainty. In Argentina the bird as a winter visitor reach the north and south of countries like Brazil and Paraguay (Scott et al 1972, Bucher and Herrera 1981). These movements can be considered to be migrations if regular and over considerable distances.

However, Magallanes province, in the southernmost part of Chile, is regarded as an important wintering area for the black-necked swan (Markham 1971, Venegas 1994). But as is the case in many different parts of the Southern Cone, swan populations are fairly stable in some wetlands (Darrieu et al 1989), their presence and number being affected by climatic variations on either side of the Cordillera de los Andes (Corti 1996). The major microregional droughts in the Southern Cone tend rather to cause the dispersion of swan populations in search of stable and productive wetlands (Schlatter et al 1996).

3. Threat data

3.1 Direct threats to the population

The sole possible direct threat to the population in Chile is that resulting from human action and human activities, such as clandestine hunting, the stealing of eggs, capture with wire lassos and collisions with high-voltage cables and high-speed motorboats.

Although there is no competition with other species, the possibility cannot be ruled out of the future introduction of other, more aggressive aquatic birds, as in the Río Cruces Natural Sanctuary, to where a pair of black swans (*Cygnus atratus*) escaped from a private collection.

3.2 Habitat destruction

The gradual destruction of the environment through direct human action is increasingly harming the world's wetlands (Munro 1981, Dirksen et al 1991). This is the major cause of threats to *Cygnus*

melanocorypha in Chile and the other countries of South America where this bird lives. Its preferred habitat, characterized by shallow waters with a high content in organic matter, mainly in the form of aquatic plants and algae, in a delicate balance between nutrients and existing plant material (Corti 1996), is therefore extremely prone to change caused by the addition of nutrients and organic matter as a result of agricultural, forestry and industrial activity and urban waste. Aquatic environments have without any doubt been among those most affected. An important process, produced under the effect of pollution through the dumping in the waters of organic material and excess nutrients, is eutrophication (Campos 1993). What is interesting is that the black-necked swan and the Coscoroba swan (*Coscoroba coscoroba*) prefer shallow waters liable to silting, so that productive environments are not stable in the long term and hence, in the absence of costly water-level management strategies and the artificial control of marsh vegetation, ecological succession will prove unstoppable. Owing to a lack of wetlands policy and wetlands experts in Chile, it is difficult to address this matter properly and promptly, with the result that the fate of black-necked swan populations in Chile will in future depend on how these ecosystems are looked after and managed.

In the oligotrophic lakes of southern Chile focal eutrophication has occurred which has stimulated the shoreline development of shrub land and hydrophytic plants which may attract swans. In the Río Cruces Nature Sanctuary, which is the only RAMSAR site in Chile, this problem has become critical owing to the imminent establishment of a cellulose megaplant, which will draw large quantities of water from the Cruces river, while also adding nutrients and pollutants to an ecosystem which is already in itself partially saturated with nutrients (N1P). Together, these factors will eventually cause the silting, degradation and destruction of the wetland, which is an important nesting area for *Cygnus melanocorypha* (Schlatter et al 1991b, 1996), besides offering shelter to a large number of swans in times of drought in Patagonia (Schlatter *et al* 1991a, Corti 1996).

3.3 Indirect threats

Polluting substances like organochloric and phosphoric herbicides affect food chains, with an increase in their concentration for each successive link in those chains, with the result that the survival of many aquatic birds is being affected (Reichel and Addy 1968, Turcek 1972, Longcore and Samson 1973, Flickinger 1979). This problem exists in Chile, but its actual effects on the swan population are still not known.

3.4 Threats specially related to migrations

There is no information available on this point, and hence nothing is known about any possible threat to the birds in their migration, but it is known that there are places where the swans can take shelter at critical times of environmental change, as for instance in the case of the river Cruces RAMSAR site. Dispersion for reasons of drought may push the swan populations towards the Antarctic and unstable sites, causing mortality and bringing unsuspected consequences (Alreidge 1989, Corti 1996, Schlatter et al 1991a, 1996).

3.5 National and international utilisation

Not used.

4. Protection status and needs

4.1 National protection status

4.1.1	Chile:	protected by law
4.1.2	Argentina:	considered to be out of danger
4.1.3	Uruguay:	protected by law
4.1.4	Paraguay:	?
4.1.5	Brazil:	protected by law at national level? at federal level?

4.2 International protection status

Listed in Appendix II of CITES

4.3 Additional protection needs

The almost imminent habitat loss, the lack of knowledge of its dispersions and migratory routes, make a need to protect and afford another category to the black necked swan. This bird is without doubt one of the most relevant and important elements of the fauna of Chilean and South American wetlands together with the Coscoroba swan. Also its presence indicates the kind of wetland as well as the environmental changes at micro and macro level (Corti, 1996).

5. Range states

(R=Resident, E=erratic, Re=reproduction, DM=Dispersive migration, W=wintering)

5.1 Chile: R, Re, DM, W)
5.2 Argentina: R, Re, DM, W)
5.3 Uruguay: R, Re scarce, DM, W)
5.4 Paraguay: E
5.5 Brasil: W
5.6 Antarctic: E, DM

6. Comments from Range States

This depends on the wetland's water level. Severe droughts may induce significant changes in the distribution with consequences not studied yet.

7. Other comments

The general nature of this information also allows the coverage of the Coscoroba swan problems in Chile. The knowledge of this species is not good enough to allow for a formal presentation.

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