

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 Humboldt penguin *Spheniscus humboldti* in Appendix I of the Convention on the Conservation of Migratory Species of Wild Animals (CMS)

B. PROPONENT: Government of the Republic of Chile (prepared by Y. Vilina and A. Simeone)

C. SUPPORTING STATEMENT

1. Taxonomy

1.1 Class: Aves

1.2 Order: Sphenisciformes

1.3 Genus and species: *Spheniscus humboldti* (Meyen 1834)

1.4 Common names:

English: Humboldt penguin

Spanish: Pinguino de Humboldt

French:

2. Biological data

2.1 Distribution

From Seal Island (5°12'S) in Peru (Hays 1985) to Puñihuil Islet (41°55'S) in Chile (Araya and Chester 1993). Its breeding areas extend from Punta Aguja (5°47'S) in Peru to Puñihuil Islet.

2.2 Population

Recent censuses for the 1995-1996 breeding season conducted by Araya (see Croxall *et al* 1966) show that the Chilean population is about 7,500 reproductive adults (about 3,750 pairs).

However, these figures appear somewhat conservative since in Pan de Azúcar island alone (26°09'S), between 5,000 and 7,000 reproductive adults were recently recorded, and about 5,000 in Chañaral island (29°01'S), which suggests at least that the Chilean population is on the increase (Vilina pers. obs.).

The 1996 censuses for the Peruvian coast reveal a population of 5,500 reproductive adults (2,750 pairs).

In view of the mixed nature of the figures put forward, it is difficult to advance a figure for the total population, which may however be said to range between 13,000 and 19,000 reproductive adults (6,500-9,500 pairs).

The population in captivity is estimated to be higher than 2,200 individuals (Simeone 1996).

2.3 Habitat

Restricted to the waters and islands of the Humboldt Current (Araya and Chester 1993). During the breeding season it forms colonies on the islands lying near the mainland and, occasionally, on the rocky coasts of the mainland. It nests in caves which it hollows out of the layer of guano, shrubs and cactaceae and in rock-covered depressions or simply exposed on the substratum.

In Chile the biggest breeding colonies are in Pan de Azúcar island (26°09'S), Chañaral island (29°01'S), Choros island (29°15'S), Pájaros island (29°35'S), Huevos island (31°55'S), Chachagua island (32°35'S)

and Pájaros Niños island (33°21'S). In Peru, the major colonies are in Lobos de Tierra island (06°25'S), Mazorca island (11°22'S), Pachacamac island (12°17'S), Punta San Fernando (15°08'S) and Punta San Juan (15°21'S) (see Croxall et al 1996).

2.4 Migrations

At present few details are known about the migratory patterns of this species, but they are presumed to be linked to the movements and migrations of the fish that make up its diet, mainly anchovy (*Engraulis ringens*) and sardine (*Sardinops sagax*).

Simeone et al (submitted for publication) and Vilina (pers. obs.) note that in winter some individuals migrate in huge numbers (over 1,000 penguins), congregating both in the open sea and in areas near the coast to feed.

It has been able to established through the tagging of penguins under the Milwaukee County Zoo research project (Wisconsin, USA) that this species covers distances of almost 200 km, possibly because of winter migrations.

Culik and Luna Jorquera (in Croxall *et al* 1996) attached satellite tracking devices to penguins in the Pan de Azúcar island colony and found that there exists a migration route extending at least 700 km north of that island, i.e. about 350 km from the border with Peru. It is therefore very likely that penguins that nest north of Pan de Azúcar go on towards the Peruvian side. The converse might be true for individuals nesting in southern Peru.

3. Threat data

3.1 Direct threats to the population

(a) The decline of the species is largely imputed in the literature to by-catching in fishing nets (Murphy 1936, Araya 1983, Araya and Bernal 1995). According to information in respect of Peru (see Boersma and Stokes 1995) and Chile (Simeone *et al*, submitted for publication), large numbers of Humboldt penguins die in this way.

(b) The hunting of adults (for human consumption or for bait) and the gathering of eggs have been reported chiefly in Peru (Murphy 1936, Koepcke and Koepcke 1963, Duffy et al 1984, Pulido 1991), but also to a lesser extent in Chile (Schlatter 1984, Vilina *et al* 1995). Such activities, on the part mainly of small fishermen and the crew members of industrial ships, are directed even at legally protected colonies.

(c) Considerable human disturbance has been reported in breeding colonies, mainly in the form of egg-gathering (Vilina 1993) and tourist activity (Araya and Todd 1987, Vilina *et al* 1995). Both activities cause nests to be abandoned.

(d) Plundering by rats (*Rattus* sp) has been recorded by Araya (1983) and Schlatter (1984). In the central part of Chile (Pájaros Niños island) there also exists a colony where there are domestic cats (*Felis catus*) that have grown wild, constituting a potential (and probably a real) danger for chicks (Simeone pers. obs.).

(e) The main oceanographic disturbance is the El Niño phenomenon (ENSO), which caused a substantial drop in population numbers when it occurred in 1982-83; in 1984 a 65 per cent decrease was recorded in the Peruvian population (Hays 1986), while the Chilean population fell by 72-76 per cent in the same year (Araya and Todd 1987).

(f) Illegal trading in live animals has not been detected by the Chilean authorities in recent years,

although it was probably an activity of some importance in the past (Simeone 1996). Moreover, according to Hays (1985), around 10,000 Humboldt penguins were exported from Peru between 1939 and 1978, and this was the probable cause of the decline in the population in that country (Koepcke and Koepcke 1963). Most of the birds ended up in foreign zoos.

3.2 Habitat destruction

Probably the earliest cause of the decline of this species was the harvesting of guano, which is its main substratum for nesting (Raimondi 1856 *vide* Murphy 1936). This activity is still practised to a considerable extent on the Peruvian coast and less intensively in northern Chile.

Another activity affecting the habitat is the gathering of shrubs and cactuses for their use as firewood. Both are important elements in nestbuilding, especially in northern Chile (Vilina pers. obs.).

A recent threat is that represented by ecological tourism (or ecotourism), involving visits to the islands where the penguins breed. The presence of large numbers of people usually causes the birds to take flight and abandon their nests, resulting in the loss of chicks and eggs.

3.3 Indirect threats

The main indirect threat for this species is industrial and small-scale fishing, which reduces the availability of prey for the penguins. The most important prey for the Humboldt penguin, anchovy (*Engraulis ringens*) and sardine (*Sardinops sagax*) (Wilson et al 1989), are much fished in Chile and Peru for the manufacture of fish meal. In the particular case of Chile, the landing rate of marine products increased from 600 tons in 1973 to 6,600,00 tons in 1992. Araya (1983) and Araya and Bernal (1995) consider this activity to be one of the chief causes of the decline of the species.

3.4 Threats specially related to migrations

Simeone et al (submitted for publication) found that there is considerable by-catching of penguins in fishing nets during the winter months (June to September) in the area of Valparaiso, Chile. This is the period when the penguins leave their nesting areas to migrate.

3.5 National and international utilisation

See paragraphs 3.1 (b) and (f).

4. **Protection status**

4.1 National protection

There is a wide consensus among Chilean researchers that this species is seriously threatened, and it is accordingly included in the "vulnerable" category (CONAF 1988, Rottmann and López 1992, Araya and Bernal 1995). It is legally protected by Supreme Decree No. 133 of the Ministry of Agriculture (1992), which prohibits the hunting of the species throughout the territory of Chile, and by Supreme Decree No. 225 of the Ministry of the Economy, Development and Reconstruction (1995), which regulates its capture for the purposes of captivity, exhibition, entertainment, culture or research.

4.2 International protection

Since 1981 this species has been listed in Appendix I of CITES, by virtue of which its exportation is prohibited.

Pursuant to recent discussions at the Penguin Conservation Assessment and Management Plan Workshop, organized in Cape Town, South Africa, by the IUCN/SSC Conservation Breeding Specialist

Group, on 8 and 9 September 1996 (data unpublished), the Humboldt penguin has been included in the "vulnerable" category, in accordance with the criteria of the New IUCN Red List Categories (see IUCN 1994).

4.3 Additional protection needs

In Chile there is an urgent need to establish protected marine areas, since none such at present exists (see Rottmann and López 1992), and, although several islands and islets where the species breeds enjoy some form of protection, the same is not true in their adjacent waters. These waters are the main feeding area for adults during the breeding season (Wilson 1995, Culik and Luna-Jorquera 1966) and are at the same time very much exploited by fisheries.

Research into the migratory activity of this species has only just begun and it would therefore be useful to undertake long-term studies on this subject, with research work being co-ordinated between Chile and Peru.

5. Range States

Chile and Peru.

6. Comments from Range States

None received.

7. Additional remarks

None

8. References

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