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

A. PROPOSAL: Listing of *Phoenicoparrus jamesi* in Appendix I.

B. PROPONENT: Government of Chile

C. SUPPORTING STATEMENT

1. Taxonomy

1.1 Class: Aves
1.2 Order: Phoenicopteriformes
1.3 Family: Phoenicopteridae
1.4 Genus and species: *Phoenicoparrus jamesi* (Sclater)

1.5 Common names

English: Puna flamingo
Spanish: Parina Chica

2. Biological data

2.Distribution (current and historical)

The species was considered extinct between 1924 and 1957, when it was rediscovered in Laguna Colarada in Bolivia. Endemic in a limited area of the puna, the population is believed to be under 50,000 individuals and is probably less.

In Chile *Phoenicoparrus jamesi* lives in the far north of the country, with its latitudinal range extending to Laguna Cotacotani (18°14'S, 69°13'W) in the north and Laguna del Negro Francisco (27°26'S, 69°15'W) in the south (Parada 1990).

The species is found at between 2,300 and 4,500 metres above sea level (asl), although it shows a preference to congregate at over 4,000 m.

Three aggregration cores can be identified for the species, namely, at Salar de Surire (18°50'S, 60°06'W), Salar de Tara (23°01'S, 67°18'W) and Laguna del Negro Francisco, all at altitudes exceeding 3,900 m. More than 86 per cent of the population is concentrated in these locations during the winter period (Parada 1990, 1990a, Ormazábal 1990).

In Bolivia it has been reported in most of the salt lakes of the high plateau (Lagos Soledad, Uru-Uru and Poopo, laguna Huairapata and Salar de Chalviri). However, the main puna flamingo population has been reported in Laguna Colorada (22°11'S, 67°47'W) and in the Department of Potosí, which comprises a nesting area for the three species of South American flamingo (Campos 1990, Hurlbert and Flores 1990).

In Peru, Hurlbert (1978) notes that the presence of *P. jamesi* is more abundant in winter, especially in Laguna Parinacochas.

In Argentina its presence has been reported in Laguna de Vilama (4,400 m asl) very near the border with Bolivia and in the northeastern high plateau and in low-lying lakes like Pozuelos (3,500 m asl) where there is a population of some 25,000 flamingos of the three species, and Guayatayoc (3,660 m asl) where as many as 2,000 *P. jamesi* have been reported. Two specimens have also been recorded exceptionally in Chubut province in Patagonia, and recently it has regularly been sighted in Laguna Mar Chiquita (70

m asl), in Cordoba province, in the south of the Chaco region, during the winter period. In this location there has been estimated to be a population of more than 70,000 individuals belonging almost exclusively to *P. chilensis*.

2.2 Population (estimates and trends)

The estimated population is 50,000 individuals (Rose and Scott 1994).

In Chile between 86.4 (winter 1985) and 99.7 per cent (winter 1986) of the individuals counted in the Surira, Tara and Pujsa salt flats and the Negro Francisco lake are of the *P. jamesi* species (Parada 1990). Particularly noteworthy was the big increase in the summer of 1986 where the number rose to 13,650 individuals, representing 79 per cent of the population counted during that period and numbering 18,649 individuals.

The Surire and Pujsa salt flats and the Negro Francisco lake sustained large groupings of the species in the summer of 1987 (74.3 per cent of the total population), while in the Tara salt flat alone there was a grouping of 17 per cent of the national total as estimated for that period (some 12,802 individuals)

Between 1990 and 1996 the puna flamingo populations began to decline in relation to previous years. In 1990 the estimated population numbered 10,678 individuals, in 1991 it dropped to 3,849, increasing in 1992 to 7,109. However, between 1993 and 1996 the population did not manage to exceed 4,000 individuals (CONAF, unpublished).

According to data reported by Hurlbert (1978), in November 1977 censuses conducted in 15 areas in Bolivia revealed 10,588 puna flamingos, of which 66 per cent were in Laguna Colorada. Subsequently, in December of the same year, 3,950 individuals were reported in 15 other locations, among which Lago Puripica in the Chalviri salt flat accounted for more than 93 per cent of the population.

During the July 1980 censuses Hurlbert (1981) found 4.347 *P.jamesi* in Bolivia, of which 63 per cent were in Laguna Colorada. No more recent data are available for that country.

In Argentina, Hurlbert (1978) reported the presence of 1,500 individuals in Laguna Vilama in November 1977. After that date, there were numerous regular sightings chiefly in Vilama and Pozuelos, and of some individuals in Laguna Mar Chiquita in winter.

In the case of Peru, Hurlbert (1978) surveyed 23 areas without finding individuals belonging to the species. There are no more recent data available.

2.3 Habitat (brief description and trends)

The species shows a preference for salt flats in the high plateaux of Chile, Argentina and Bolivia, above 4,000 m asl, where there exist shallow lakes with high concentrations of salt, rich in such microalgae as *Surirella* sp.(López 1990) and diatoms.

The water levels of the high Andean lakes used by the flamingos vary considerably. A lake like Pozuelos which covers an area of some 10,000 ha. has dried up almost entirely several times in the last 15 years. It rapidly rises with the rains, thus wiping out colonies of *F. chilensis*. This may be seen as a further unfavourable factor affecting the reproduction of the species. See section 3.

2.4 Migrations (types and movements, distances, proportion of the population migrating)

Parada (1990a) notes that, according to available records, the summer distribution centre of *P. jamesi* comprises the southern region of the Bolivian high plateau (including Chalviri salt flat and Colorada lake), extending to the Atacama puna in Chile (particularly the Pujsa and Tara salt flats) and to the

northeastern high plateau of Argentina, i.e. in the summertime to the area of lake Vilama.

In winter a decrease is to be observed in the population of the species in the southern high plateau and the Atacama puna, with increases in the central high plateau of Bolivia (lakes Uru-Uru, Poopo and Soledad) and the Peruvian high plateau, which would suggest a northward movement towards areas at a lower latitude in Peru and lower altitudes in Bolivia. Partial movements are also observed in Chile, from the Atacama puna to lower latitudes in the Atacama salt flat.

Other eastern movements are said to be represented by the migration of a fraction of the population of the Atacama puna and the southern Bolivian high plateau towards low-lying lakes like Pozuelos (3,500 m asl) and Guayatayoc (3,660 m asl) in the north of Argentina, which areas are also reported to be reached by the migrant portion from Negro Francisco lake, which is the southern limit of the puna flamingo's range in Chile (Parada 1990a).

3. Threat data

In the Andes flamingo colonies have long been a source of feathers, meat and eggs for the indigenous peoples of the high plateau. However, this type of practice has been reduced through the educational and safeguarding campaigns carried out in each country.

Nowadays the main problems encountered by flamingo populations concern the modification of the habitat by mining, industrial and tourist activities and by the increase in pollution and human settlements.

In Bolivia direct plunder by human beings has ceased to be a problem for the flamingo populations thanks to safeguarding and educational campaigns conducted in particular during the breeding season. However, other sources of harm have been identified such as the salt industry and mining, which disturb the flamingo populations and their habitat through heavy metal pollution of the waters (Campos 1990).

In Lago Poopo there have been found to be high concentrations of heavy metals resulting from the mining and industrial activities on the banks of the waterways flowing into that lake.

The increase in the human population living in the vicinity of the salt flats is a further factor of change in the flamingo populations, directly affecting the behaviour of individuals and their optimal habitat conditions (Campos 1990).

In the case of Lago Uru-Uru, the major cause of concern is the invasion of the areas around the lake by human beings. The lake lies south of the city of Oruro and is being directly affected by the urban and industrial development of that city and the increase in its population. For example, many factories and ore refineries discharge their sewage directly into the lake. Similarly, the city rubbish dump is 400 metres from the water's edge. Fuurthermore, owing to the increase in the area under cultivation, there is growing use of pesticides and chemical fertilizers.

In Chile the situation is not very different from what it is in Bolivia. The extraction of non-metallic ores in the salt flats, the increase in tourist activities, the drawing of water for human consumption and for industrial and mining operations have enormously affected the flamingo populations and their habitat, which is reflected in the drastic decrease in the size of the population in the past five years (CONAF, unpublished).

The Atacama salt flat, for instance, has in recent years been affected by intense mining and tourist activity. The extraction of non-metallic ores such as lithium has brought about change in the structure of the ecosystem, reducing its potential as a nesting area. In addition, the tourist boom, reflected in the increase in the number of visitors (approximately 10,000 people a year), has led to a decline in the flamingo populations and to an alteration in their reproductive behaviour (CONAF, unpublished).

In addition, flamingos lay a single egg, which they replace only if they lose it in the first days of incubation, they nest erratically and not every year and their colonies are threatened by floods and droughts, by a number of human activities and by various natural predators. As adults they have a high survival rate, which may give a false idea of the stability of the population, even if the reproductive rate is very low, as might be the case at the present time.

4. Protection status and needs

4.1 National protection status

In Chile *P. jamesi* is classified as a "vulnerable" species in accordance with the Red Book of Terrestrial Vertebrates of Chile (A. Glade, Ed. 1993).

Furthermore, most of the lakes and salt flats in the high plateau of northern Chile form part of the National System of Protected Wildlife Areas of the State, especially those corresponding to aggregation cores (Surire and Atacama salt flats and Negro Francisco lake). These very sites will shortly be proposed as wetlands of international importance for the RAMSAR Convention.

From the legal point of view, the new Regulations issued under Hunting Act No. 4,601 of March 1993 prohibit the hunting, capture and possession of species of terrestrial vertebrates native to Chile for the next twenty years. Moreover, General Environment Act No. 19,300 in force since March 1994 makes it mandatory for environmental impact sudies to be carried out prior to the undertaking of any development or production project that may affect the environment, in order to identify impacts and propose mitigating measures and long-term plans for the monitoring of the biotic and abiotic components of the ecosystem affected.

4.2 International protection status

In Bolivia major efforts are being made to improve the conservation of *P. jamesi* in the Colorada, Verde and Kalina lakes, in particular, which form part of the Eduardo Avaroa Andean Wildlife National Reserve, in the Department of Potosi, where the nesting areas of the three species of South American flamingos are to be found.

Flamingos are protected by law in Bolivia, but the laws protecting these birds and their products are not widely observed. Bolivia's General Wildlife Act (Legislative Decree No. 12,301) provides the general framework for the use and marketing of animal species. This Act is implemented through Supreme Decrees Nos. 16,605 and 08063, which list the species in danger of extinction and prohibits the hunting and marketing of them. Flamingos are listed in both (Campos 1990).

In Argentina Pozuelos lake is a Natural Monument of the National Parks Authority and a RAMSAR site. Work is currently in progress with a view to the protection of the Vilama lake. In addition, the Olaroz Cauchari and Los Andes Provincial Reserves are within the puna flamingo's range.

4.3 Additional protection needs

It is considered highly necessary for all the Range States of the species *P. jamesi* that have not ratified the Bonn Convention (Peru and Bolivia) do so as soon as possible.

In addition, as a way of ensuring the conservation of wetlands in the high plateau, where the species rests, feeds and breeds, Protected Wildlife Areas should be established and they should be included among those listed under the RAMSAR Convention.

5. Range States

Chile, Argentina, Peru and Bolivia.

6. Comments from Range States

7. Additional remarks

8. References

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