

## CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

## Other proposals

A. Proposal

Inclusion in Appendix I of the quirquincho (*Chaetophractus nationi*)

B: Proponent

Bolivia

C: Supporting Statement1. Taxonomy

- |                         |               |   |
|-------------------------|---------------|---|
| 1.1 Class               | Mammalia      |   |
| 1.2 Order               |               | Xenarthra   |
| 1.3 Family              |               | Dasypodidae   |
| 1.4 Genus and species   |               | <i>Chaetophractus nationi</i>   |
| 1.5 Scientific synonyms |               | <i>Dasypus nationi</i> Thomas, 1894   |
|                         |               | <i>Chaetophractus sajama</i> (cited in  |
|                         |               | Suarez, 1986)   |
|                         |               | <i>Chaetophractus boliviensis</i> (cited  |
|                         | Suarez, 1986) | in  |
|                         |               | <i>Euphractus nationi</i> (cited in Glade,  |
|                         | 1993)         |   |
| 1.6 Common names        | Spanish       | Quirquincho<br>Armadillo peludo del altiplano<br>Mulita<br>Quirquincho andino<br>Quirquincho de la puna |

2. Biological Parameters2.1 Distribution

This species's habitat covers an area of approximately 1250 square kilometres (Cáceres, 1996) in the semiarid puna on the central altiplano of Bolivia, in the departments of La Paz and Oruro. There are also isolated populations in northern Potosí and in northwest Cochabamba (Anderson, 1993; Cáceres, 1995). According to Redford and Eisenberg (1992), there are populations of this species in northern Chile, where it is recommended that studies be carried out to gather more information (Glade, 1993). Populations are broken up within its range, but precise data is not available because of a lack of studies.

2.2 Habitat availability

In general, the quirquincho (*Chaetophractus nationi*) lives in sand deposits on small high plateaus, between 3500 and 4300 metres in altitude.

At midday on the altiplano, the sun's radiation is very intense favouring the accumulation of heat in burrows. This species requires warm burrows and abandons them if they become damp. Most burrows are found in the lower part of sand dunes, surrounded by sparse vegetation of primarily *Baccharis incarum*,

*Baccharis boliviensis*, *Parestrephia lepidophylla*, *Fabiana densa* and *Stipa ichu* as well as individuals of the following species: *Distichlis humilis*, *Suaeda foliosa* and *Hymenoxys robusta* (Cáceres, 1994).

Two important factors lead to the destruction of its habitat: the expansion of agriculture and the removal of sand from its habitat.

The expansion of agriculture affects its natural habitat and food sources, thus curtailing the species's normal evolution. In the triangle formed by Turco, Pacalle Pampa and Quebrada de Challa Jawira in the department of Oruro, land has been opened for agriculture by transforming sand dunes into fields, thus affecting the distribution of this species. The rate of habitat destruction caused by this phenomenon is not known.

Sand from the quirquincho's habitat is used for construction, pavement and sand boxes for playgrounds in the departments of Cochabamba, Oruro and Potosí. In addition, the use of sand dunes as recreation areas (motocross, beach volley, among others) has led to the extinction of some local populations with greatest impact on areas of easy access close to urban centres. These practices destroy the burrows, contaminate the habitat and, as a result, force the species to migrate to more distant areas.

### 2.3 Population status

In a census carried out in 1995 (Cáceres, 1995), all burrows were counted in more than 340 square kilometres within the provinces of Carangas, Cercado, Ladislao Cabrera, Litoral, Saucari, Tomás Barrón and Totora in the department of Oruro and within the provinces of Gualberto Villaroel and Pacajes in the department of La Paz. This census recorded 3604 active burrows and 3221 inactive burrows. Using these figures and estimating one individual per burrow, a density of 10.6 individuals per square kilometre was determined.

In the same study, ten burrows were closely studied to determine their length and the number of exits. An average burrow length of 13 metres and three exits were found. Taking this into account and assuming that the number of burrows may have been overestimated by attributing each entrance or exit to one burrow, a revised number of 2.6 individuals per square kilometre was calculated (Reichle, 1996).

The number of estimated individuals, 10.6 per square kilometre, multiplied by the number of square kilometres of suitable habitat gives a total of 13,250 individuals throughout the quirquincho's range. Whereas if the average of 2.6 individuals per square kilometre is used, the total would be 3,312 individuals.

In the study made by Reichle (1996) in the region of Abaroa in the department of Oruro within an area of 1200 by 400 metres (0.48 sq km) during the period between dusk and one A.M., footprints were observed of two animals and probably a third. Based on this information, it was estimated that there are 4 animals per square kilometre and a total of 5000 individuals in this species's range. It should be mentioned that the study area was defined with the use of GPS.

Based on this information, it is estimated that the total quirquincho population in Bolivia is between 3212 and 13,250 animals.

### 2.4 Population trends

There is no information available on population trends. Nonetheless, in conversations with inhabitants who hunt the quirquincho in the area around Abaroa in the department of Oruro, it was stated that it is more difficult to find this species than in previous years.

### 2.5 Geographic trends

No information is available about this subject.

### 2.6 Role of the species in its ecosystem

The quirquincho (*Chaetophractus nationi*) is an omnivore feeding on vegetation and a small percentage of small invertebrates (Mann, 1978). Quite frequently, it digs below dead animals in order to obtain larvae and insects and may even forage in dead animals. In certain circumstances, it finds grubs, larvae and insects a few centimetres below the surface (Nowak, 1991). Cáceres (1995) stated that quirquinchos dig to obtain tender roots.

Its function in the ecosystem has not been widely studied, although some authors comment that its burrows allow water to enter the soil more efficiently and that the burrows may be used by other ground-dwelling and burrowing animals. The quirquincho's burrowing may increase the exchange of nutrients between the surface and the soil.

## 2.7 Threats

The main threats to the species are the expansion of the agricultural frontier, the use of its habitat for human activities and trade in its shell for the local manufacture of traditional musical instruments (charangos and matracas).

## 3. Utilization and Trade

### 3.1 National utilization

Throughout the Andean region, this species is used for charms, folk medicine, food, fortune-telling, musical instruments and various other uses.

Domestic use exerts a strong pressure on the populations of *Chaetophractus nationi* throughout its range in Bolivia (See section 3.3 of this proposal).

### 3.2 Legal international trade

Under law 2261, Bolivia has imposed a nationwide and permanent ban on its capture. Therefore, exportation is illegal and there is no legal domestic trade.

### 3.3 Illegal trade

There is both national and international illegal trade. The following is a detailed description of the use of this species from a study carried out between 1986 and 1995 (Cáceres, 1995).

Used as a charm in jewellery shops and in shops in general where dried specimens are filled with magical contributions by the owner in the departments of Cochabamba, La Paz, Oruro and Potosí. (Protection and good luck for the shop possessing a quirquincho; Widely used; 200 specimens annually).

The bones, claws, shell, fat, hair and tail are used for folk medicine in the department of Oruro as a remedy for many ills. (Moderately used; 100 specimens annually).

As food and a source of protein for human consumption by the Uru Murato community in the department of Oruro. (Little used; 80 specimens annually).

For magic rites, the quirquincho is placed in a small corral, and the shaman (yatiri) whips it while calling out the names of potential criminals; when the animal whines at the sound of the criminal's name, the criminal is identified. Another use is to pour coloured ink on the shell, causing the thief to acquire the same spots and thus be identified. (Infrequently used in the department of Oruro to identify a person suspected of theft; 20 specimens annually).

For the charango, a musical instrument purchased by musicians, collectors and primarily foreign tourists in the departments of Chuquisaca, Cochabamba, La Paz, Oruro and Potosí. A decorative item, considered to be a typical Bolivian folklore instrument. (Excessively used; 550 specimens annually).

A musical instrument, the matraca, used by dancers in areas with a traditional carnival in the department of Oruro and of considerable importance as an export to northern Chile, northern Argentina and southern

Peru. A percussion instrument for indicating dance rhythms. (Excessively used; 350 specimens annually).

Unworked shells are used for making various tourist souvenirs and are exported to Argentina, Chile and Peru in illegal trade with neighbouring countries. (Excessively used; 650 specimens annually).

Reichle (1996) recorded more than 150 quirquinchos (used as charangos or stuffed) in roughly 20 shops, throughout Bolivia during a survey made on the sale of wildlife products. It is also reported that two shops export charangos using the quirquincho shell to Texas in the United States and to Spain.

### 3.4 Actual or potential trade impacts

Cáceres (1995) estimates that approximately 2000 quirquincho shells are used annually. This means that based on the most optimistic estimates for the total population of the species, this species will be extinct in less than ten years.

### 3.5 Captive breeding or artificial propagation for commercial purposes

There is no known breeding of this species.

## 4. Conservation and Management

### 4.1 Legal status

#### 4.1.1 National

The following are examples of legislation governing the conservation of wildlife: Environmental law 1333, passed in April 1992 of which Article 52, Chapter VI states: "The government and citizens should ensure the protection, conservation and restoration of both aquatic and terrestrial wildlife and plants, considered to be a national heritage, especially endemic species, those with a limited range and those threatened with or in danger of extinction."

Other articles of this law establish the obligation to ensure the sustained use of authorized species based on technical, scientific and economic data. At the same time, this law states that the appropriate authorities should establish regulations, enforce legislation and procedures authorizing its use and establish bans whenever warranted.

The law on wildlife, national parks, hunting and fishing, Law 12301, approved in 1975, regulates the use of wildlife without introducing more recent terminology and concepts, but based on sustainable use and the government's obligation to regulate and administer the use of wildlife resources.

Law 22641 declared a permanent and general hunting ban and protects all Bolivian fauna and flora from damage, capture, exploitation and processing. The enforcement of this law since 1975 has contributed to the recovery of some species that were endangered, although the situation of the quirquincho has not significantly changed.

Regulations concerning wildlife are being prepared under the terms of the environmental law. Final preparation is being made on the draft of a law for the conservation of biological diversity. These laws will provide the legal framework needed for better control of trade in wildlife and derivatives.

#### 4.1.2 International

There are no specific regulations concerning this species, and very few countries regulate the importation of wildlife products from Bolivia that are not listed in the Appendices of CITES.

### 4.2 Species management

#### 4.2.1 Population monitoring

Non-existent.

#### 4.2.2 Habitat conservation

A population of quirquinchos is being protected in an area of the Sajama National Park.

#### 4.2.3 Management measures

The area occupied by the quirquincho population in the Sajama National Park will be declared a sanctuary for this species.

#### 4.3 Control measures

##### 4.3.1 International trade

At the present time, articles made from this species freely circulate internationally because this species is not included in the Appendices of CITES.

##### 4.3.2 Domestic measures

During 1996, the number of wildlife rangers was doubled, and protection has been reinforced in the protected areas. A programme of awareness and information among the civilian population has been established. An important place in this programme is given to the contents of CITES using teaching materials. A training programme has been established for government employees in the customs service and the police to identify specimens whose trade is restricted by CITES. Final procedures are being established for the collection of wildlife specimens for scientific studies.

#### 5. Information on Similar Species

Redford and Eisenberg (1992) question the validity of *Chaetophractus nationi* as a distinct species and hold that it is simply a subspecies of *C. vellerosus*, and that *C. nationi* is a species between *C. vellerosus* and *C. villosus*.

Owing to a limited range it is highly unlikely that the names of the other species are being used in place of *C. nationi*, although there are cases in which *C. vellerosus* has been used.

#### 6. Other Comments

The populations of *C. nationi* in Bolivia are threatened with extinction because estimated populations are very low and, thus, met the criterion established by CITES for inclusion in Appendix I. Likewise, the populations of *C. nationi* in Bolivia meet the biological criteria established in paragraphs B, sections i and iv; C, section i; and D for inclusion among the species in Appendix I.

The study *Libro Rojo de los Vertebrados de Bolivia* (Ergueta, P. and C. Morales, Eds, 1996) places this species in the category of endangered species. It is placed in the same category in the *Libro Rojo de los Vertebrados Terrestres de Chile* (Glade, 1993).

Its inclusion in Appendix I of CITES will permit better control at the borders and will stimulate the carrying out of studies to determine the state of conservation of quirquincho populations in Bolivia.

#### 7. References

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