UNIVERSIDAD DE CIENCIAS APLICADAS Y AMBIENTALES

U.D.C.A.

UNIDAD DE INVESTIGACIÓN EN FAUNA SILVESTRE

PROPOSAL

PAKARANA (*Dinomys branickii*) CONSERVATION PROJECT

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INTRODUCTION

Colombia is one of the world's richest countries in terms of species diversity and is second to Brazil in overall species numbers (Primack *et al*, 2001). This high biotic diversity can be attributed among other reasons, to its mountainous aspect with three Andean chains reaching almost 6000 meters above sea level. The effects of altitude and climate have combined to create a myriad of microhabitats along their slopes, each home of its own distinct and unique flora and fauna, featuring some of the highest levels of species diversity. These conditions contribute to place the Andean region as one of the richest in species from the Neotropics, because of the high number of species per area (Cavelier, 1997; Sarmiento, 2001). This exceedingly high diversity coupled with the high degree of threat places Colombia among the highest conservation priorities on earth (Hernandez *et al*, 1992).

Deforestation in the tropics is the major agent of extinction in this century and ultimately results in the localized extinction of most resident plants and animals. In Colombia, the Andean region is one of the most overexploited ecosystems of the country, mainly because of population density with the consequent transformation of natural habitats (Kattan, 2001). This means that the exploitation degree and the environmental degradation especially between the eastern slope of the western cordillera and the western slope of the eastern cordillera, as well as at the northern part of the Andes, is particularly high. The remnant mountain forest in some cases exists only as small patches or fragments. Some estimates suggest that only less than 10% of the Andean forest still exists (Ortiz, 1995; Powell & Bjork, 2001) and probably the area covered with the remaining mountain forest is not more than 5%.

Conservationists throughout the world are aware that the primary threats to Latin America's wildlife are loss of pristine habitats, particularly tropical moist forests and unregulated harvests, mainly for commercial purposes (Mares, 1986; Myers, 1991). Additional threats have their origins in global climatic changes, contamination and the introduction of exotic species, which especially in the tropics has generated a considerable impact by the introduction of domestic animals like cattle. In fact, the general problem in tropical countries is well known and there is undoubtedly an interest to obtain adequate solutions that will involve development with sustainable use and wildlife conservation.

BACKGROUND

The "Pacarana", *Dinomys branickii*, is one of the most unknown rodent species of the South American Andean region. Since the last century when the species was first described by Peters (1873), it was mentioned in literature as a rare and endangered species (Mohr, 1935; Collins & Eisenberg, 1972; Merrit,1984; White & Alberico, 1992). The "Pacarana" was described for the first time in Venezuela during the late 20th century (Boher, 1988) enlarging the known geographic distribution of the species. In Colombia the geographical distribution of *D. branickii*, known as Guagua Loba, embraces the three Andean chains between 1800 – 3200 m (Osbahr, 1995).

Although *D. banickii* is mentioned by IUCN as endangered (2003), mainly because the habitat has been so drastically reduced that it is deemed to be in immediate danger of extinction, the status of this species is not well known. The remaining number, the local geographic distribution and regional or local causes of the decline are not clear. Its taxonomic uniqueness (last survivor of the family Dinomyidae) and the taxon level threatened (one genera one species) as well as

the amount of habitat reduction and the rate of reduction of remaining habitat, are probably the only criteria for evaluating the status of this endangered species. In Colombia de species is mentioned in the preliminary lists of threatened mammals as vulnerable (Rodríguez, 1998).

The Universidad de Ciencias Aplicadas y Ambientales (U.D.C.A.) in Bogotá, Colombia, has been working on the research of hystricomorph rodents of the Andean ecoregion, including the Pacarana *Dinomys branickii*. Actually the pacarana project is part of the U.D.C.A.'s Andean Ecosystem Research Line and the Fauna Research Group is officially recognized by the Colombian government (Appendix 1). The whole research project has been focused on obtaining information for the design of a management plan for this endangered species, keeping in mind if possible the reintroduction of captive breed animals as well as habitat management and educational programs for local rural communities. As part of the study the University also ended up with a group of 8 Pacaranas confiscated by the Colombian government from illegal wildlife trade. The breeding success during the past years has doubled the population and at this moment the group consists of 17 animals (adult males and females and one-year-old captive born animals) which are presently maintained in a large outside enclosure at the University for Biological Studies. Due to the low knowledge about this species the research group has developed during the past years some basic biological studies such as morphophysiology, behavior, parasitism, geographic distribution and nutritional ecology (Osbahr, 1994; 1996; 1997; 1998; 1999; 2000; 2001; 2003; López, *et al* 2000). Actually the group is working on the determination of the reproductive cycle testing fecal pregnanediol (PdG) in females as well as on the interpretation of the large vocalization repertoire of the species in relation to behavior. The information on basic biological and ecological aspects will support the activities that will be developed in the future in the Pacarana Conservation Project.

The project has been supported mainly by U.D.C.A., with some additional funding obtained for specific research from some national and international NGO's (Fondo para la Protección del Medio Ambiente José Celestino Mutis – FEN; Convenio Andrés Bello – SECAB; Fundación Colombiana de Estudios de Parásitos – FUNCEP; World Society for the Protection of Animals – WSPA, New York Zoological Society – NYZS). Recently U.D.C.A. has been made an effort to maintain the captive Pacarana population with their own financial resources, but the high costs has taken the directives to outline the possibility of closing the captive breeding conservation project.

The goals of having successful *in situ* and *ex situ* conservation to assist wild populations could only be reached through education, support of field conservation initiatives, research, and maintaining or preserving significant amounts of genetic variation if needed as a future reservoir. Pilot wildlife management programs will be important for building public recognition and support for wildlife management and conservation in general. Colombians, like people elsewhere, are more likely to support conservation programs that offer them tangible incentives instead of legal prohibitions.

The results of the proposed Pacarana Conservation Project will allow to define priority problems, by a systematic evaluation of local conditions, and to start in a future an action plan using *D. branickii* as a flagship species which will stand for or promote conservation in a general or regional sense. May be the only way to guarantee the future of this unique species, is to focus the conservation efforts both on the species as well, as on the habitat in which it is or was found, looking for a global pilot conservation effort which will benefit not only the species but also the remnant forest and therefore the rural community.

OBJECTIVES

General objective

To develop a long-term conservation project that will guarantee the survival of the Pacarana (*Dinomys branickii*) at the Colombian Andean region.

Specific objectives

Create a working group or consortium to strengthen the existent U.D.C.A.´s fauna research group and develop together the Pacarana Conservation Project

Strengthen the actual Colombian captive breeding program

Continue the captive and field conservation research with the species in Colombia

Establish a loan program for conservation breeding and education

Define a population management plan for the species in Colombia

WORKING PLAN:

SHORT TERM ACTIONS

1. Creation of the working group or consortium

1a. The group will initially consist of:

Fauna Research Group U.D.C.A.
Representatives of the EAZA Zoo community
Representatives of the EAZA Rodent TAG
Representative of ZGAP

2. Work out of a Memorandum of Agreement under the following aspects:

2a. Support the captive Pacarana colony at U.D.C.A. and the field conservation work with an annual contribution initially for five years with an option to extend it into the future.

2b. Define the breeding loan program at European zoos depending on breeding success at U.D.C.A.'s Pacarana breeding colony.

2c. Commitment to guarantee the ownership and purpose of all Pacaranas included in the breeding loan program

2d. Management of a studbook to decide on breeding plans and whether animals born in the colony should be loaned to additional zoos or be returned to Colombia for re-introduction

2e. Guarantee the legal export of the captive born animals according to Colombian and international laws

2f. Signature of a contract of common agreement between all members including

Funding for Pacarana conservation research projects in Colombia beyond the initial five years
Funding for transport costs of the Pacaranas included in the breeding loan program
Travel once a year to Europe to promote the Pacarana Conservation Project
Travel of international experts that could advise the research projects in Colombia
Promote international meetings in other countries included in the geographic distribution of the species
Citation of the working group members in any official publication

CONDITIONS OF AGREEMENT:

The whole breeding Pacarana group and all offspring born in Europe would remain ownership of U.D.C.A. and/or the Goverment of Colombia.

These animals (and all offspring) will not have any commercial value assigned, will never be sold or traded and will not be used for any bioprospective research.

The reason for loaning these animals to selected zoos will be exclusively for conservation breeding and education.

Reintroduction programs will only be started if they are supported by a research program that guarantees genetic variability and long-term population viability of the released animals

In case that a reintroduction program is not feasible and realistic, the members of the working group or consortium will search for *in situ* management plans that will guarantee the survival of the species in Colombia.

LONG TERM ACTIONS:

The Pakarana Conservation Project Working Group or Consortium will define together a global research plan with specific projects in captive and wildlife populations that will include:

DNA studies to define genetic and demographic variability at the captive-breeding colony and in remaining wildlife populations.

Definition of the real conservation status of the species in Colombia

Evaluation of the communities' assessment towards the species

Evaluation of the remnant tropical mountain forest

Continue general biological and ecological studies of the species

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