

National Program for Llanero Caiman conservation in Colombia. Advances and perspectives

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INTRODUCTION

The National Program for the Conservation of the caiman defined the actions to continue the recovery and conservation of the species, inside the framework of the knowledge on its population status.

Indeed, starting from the Resolution 0676, July 21th, 1997, by the Ministry of the Environment, by which the species *Crocodylus intermedius* is declared in extinction danger, the initial actions by the Institute Alexander von Humboldt and the Ministry of the Environment went to the elaboration of a general conservation program, that was product of the agreement of public and private institutions with direct and/or indirect incidence on the existent population relicts and in the territories known as traditional habitats of the species.

It is sought that the committed institutions adopt the established line guides, in such a way that the activities framed inside each action can be appropriately coordinated and carried out in order to accomplish the proposed goals.

ANTECEDENTS

The llanero caiman *Crocodylus intermedius* (Graves 1819) is distributed in the Orinoco River basin, shared by Venezuela and Colombia. Medem (1955) affirmed that the species should be considered as a threatened component of the wild fauna and in danger of a prompt extinction in the country. Between 1965 and 1968 was implanted in Colombia a prohibition to the commercial hunt of this and other species. Later in 1975, the species was included in the Appendix I of the International Convention on the Trade of Threatened Species of Wild Fauna and Flora (CITES). During 1975 the first count of the species was carried out and 280 individuals were registered (with a probable maximum of 780), mainly in the Department of Arauca; for then it had disappeared almost completely in the Casanare and Meta Rivers (Medem 1974).

Between 1993 and 1994, a census was carried out in the whole Orinoquia region sponsored by COLCIENCIAS, the Wildlife Conservation Society, and the National University of Colombia (Lugo, 1996). Four areas with population relicts were found, and 34 individuals counted, 4 of them sub-adults; few nests on beaches and hatchlings were sighted. In 1994, the Ministry of the Environment begins a study in order to modernize the status, distribution and systematic information of the Crocodylia in the country, by which of the species status was updated: only 28 individuals were located in the river Ele (Arauca), most adults in a population strongly threatened by local residents (Barahona *et al.*, 1996). The census also reported the possible presence of isolated individuals in the Lipa and Orinoco Rivers (inside the National Park El Tuparro). In 1996, after some indications of existence of the species in La Macarena, the Ministry of the Environment and the Humboldt Instituted supported a census in the Guayabero and Duda Rivers, where at least 4 individuals were reported in the sub-basin of the Guayabero River (between La Macarena and Angostura) (Naranjo, 1997). Likewise, the presence of at least 4 individuals has been detected in the Vichada River (Ardila *et al.*, 1999)

On the other hand, the National University of Colombia in the Station of Tropical Biology Roberto Franco (EBTRF) of Villavicencio, developed the investigation and ex-situ conservation of this species in Colombia. At the present moment, the EBTRF possesses 81 individuals of whom 60 were born in the Station, and 21 have been obtained with retentions, plus 6 mature individuals and two couples of reproducers that have produced viable postures year after year since 1991, with some exceptions. In the Fundación Yamato (Municipality of Puerto Gaitán, Department of Meta, Colombia), there are 27 animals born in the Station aged approximately 10 years old. These last ones are the first F2 generation of the Station, and probably are next to reach sexual maturity. The Secretary of Agriculture of Casanare possesses 2 individuals, and 2 more have been given to private producers

POLITICIAN AND NORMATIVE FRAMEWORK

Due to the hunt pressure on the species wild populations in Colombia, the Resolution 411 prohibited indefinitely commercial hunt since 1968, including capture of caimans and gathering of eggs or hatchlings. This resolution was ratified later by the Resolution 573 (July 24th, 1969) of INDERENA, institution designated in that moment for the execution of policies on environmental and conservation matters.

Facing the status of the wild populations, the Ministry of the Environment by Resolution 0676 (July 21th, 1997), officially declares the species in extinction danger and promotes the design and implementation of a plan for its conservation and recovery.

In this framework, the Institute Alexander Von Humboldt and the National University of Colombia, with the support of the Ministry of the Environment, elaborated the National Program for the Conservation of the Caiman Llanero.

GENERAL APPROACH

The program will be developed following the approaches settled down by IUCN for Crocodylia. It is sought in a first phase to pass the species in "Critical State" to "In Extinction Danger" in a short term, and in a long term take it to the category of "Low Risk".

GENERAL OBJECTIVE OF THE PROGRAM:

To prevent the extinction of the caiman llanero (*Crocodylus intermedius*) in Colombia, and to promote their recovery in its distribution range, contributing to its conservation in a long term and integrating it to regional economic and cultural systems.

Specific objective

To obtain an increase of the wild population of at least 50%, an increase of the presence range in more than 500 sq. km and more than 2500 mature individuals of the species.

In order to achieving the enunciated objectives, the development of six specific actions is proposed:

- Recovery of eggs and hatchlings
- Establishment of 1.200 sq. m of infrastructure for the rising of 2500 individuals
- Identification of potential habitats for reintroduction
- Definition of reintroduction protocol
- Monitoring reintroduced populations

- International Exchange

The Technical Secretary of the Program in principle was in charge of the Institute of Investigations Alexander von Humboldt, entity that makes part of the CITES Scientific Authority of the country. Since 1999 this function was assigned to the Station of Tropical Biology Roberto Franco of the National University, who has developed great part of the investigation with the species.

The following table synthesizes the main aspects developed by the program:

ACTIVITIES	APPROACHES AND ACTIONS	INDICATORS
Recovery of eggs and hatchlings	<p>Identification of locations, local residents, private owners</p> <p>Promotion of the program</p> <p>Development of control mechanisms of origin and genetic handling</p>	<p>Still to know final results of project carried out in Arauca 2000 – 2001 Censu Duda – Guayabero 2001 – 2002</p> <p>Workshops in 7 towns in Orinoquía. 300 attended persons. 251 answered polls</p> <ol style="list-style-type: none"> 1. Project of genetic characterization of the genus <i>Crocodylus</i> 2. Genetic structure of <i>C. Intermedius</i> ex situ populations.
Establishment of 1.200 sq m of infrastructure to rising of 2500 individuals	<p>Evaluation of alternatives of potential and existent facilities in Orinoquia region</p> <p>Obtaining of funds for investment and maintenance</p> <p>Structuring research processes with institutions and researchers</p>	<p>Facility for a couple delivered by EBTRF to Secretaría de Agricultura de Casanare en Yopal</p> <p>Facility fo a couple delivered to don Rito Segovia in Maní, Casanare</p> <p>Four requests of adults, including the “Fundación para la Conservación del Cocodrilo del Orinoco (<i>C. Intermedius</i>)”</p> <p>At least 5.000 sq m additional offered by Fundación Yamato for ex situ.</p> <p>2 private institutions in Andean and Atlantic Coast sectors del sector willing to accept <i>C. Intermedius</i> for care.</p> <p>1800 sq m built by Gobernación de Casanare for reproducers</p> <p>An scale model of the EBTRF financed by the Mayor of the Municipality of Villavicencio with redefinitions of facilities for breeding and rising before releasing of <i>C. Intermedius</i></p> <ul style="list-style-type: none"> ➤ Bank of 19 projects ➤ 13 participant researchers

		<ul style="list-style-type: none"> ➤ A program of investigation on genetic diversity and sustainable administration of wild fauna supported by Procaiman ➤ 3 participant institutions
Identification of potential habitats for reintroduction	Presence of population relicts	Census in Arauca 2000 – 2001 (same project of activity 1) Census in Duda – Guayabero rivers 2001-2002
Defining reintroduction protocol	<p>Pilot test with 30 specimens EBTRF</p> <p>Carrying out of identification process</p> <p>Blood chemistry, etc.</p> <p>Measurement and sex determination process</p> <p>Definition of rules for transportation of animals ((control of humidity, moorings, fast, etc.)</p>	<p>Project designed searching for funds</p> <p>Electronic marking with micro chips of ex-situ individuals with Ministry of Environment funds</p> <p>Project designed, without funds</p> <p>Yearly carried out in EBTRF</p> <p>Picture bank in EBTRF to show handling of animals (capture, sex determination, measurements, mooring, blood and urine sampling, etc.)</p>
Monitoring reintroduced populations		
International exchange	Promote meeting of Ministries of Environment of Colombia and Venezuela and the compromise of the Vicinity Commission	<ul style="list-style-type: none"> ➤ In preparation by Venezuela. Co-ordinated in Colombia by MinAmbiente ➤ Divuligation of Procaimán in the V Congress of Wildlife Management, Asunción, Paraguay, 1999. Course on threatened species, Antigua, Guatemala, 1999, Distribution of publication on Procaiman to specialists of CSG/SSC/IUCN in 15th workshop in Varadero, Cuba, january 2000.
Other	Yearly Publications (on this and another matters)	<ul style="list-style-type: none"> ➤ 4 in 1999 ➤ 1 in 2000 ➤ Bank of 19 projects

All the activities are channeled through the Technical Secretary of the Program, which is responsible for the institution coordination and to favor the development of the program through the following instruments:

- Financial
- Communication

- Education
- Investigation

Finally, we consider that the purpose and the way to complete the traced goals both of Colombian and Venezuelan program is:

Coordinate joint efforts and work for promoting the *Crocodylus intermedius* conservation between Venezuela and Colombia.