

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA



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MONITORING PROGRAM OF MORELET'S CROCODILE (*Crocodylus moreletii*)
MEXICO-BELIZE-GUATEMALA: RESULTS OF 2011 SEASON

1. This information document has been submitted by the Mexico*.

BACKGROUND

2. The 15th meeting of the Conference of the Parties (Doha, March 2010) adopted by consensus an amendment proposal to transfer Mexican and Belizean populations from Appendix I to II with a zero quota for wild specimens with commercial purposes ([CoP15 Prop. 8](#)).
3. Such amendment proposal was mainly based on CoPan Project (2002-2004; Domínguez-Laso *et al.*, 2005) and the subsequent population models, financed by CONABIO. Results showed that the species was not endangered, as it was present in the whole historical range of distribution with a global population of almost 100,000 individuals (80,000 of them in Mexico), of which more or less 20,000 were reproductive adults (15,000 of them in Mexico) and 40% juveniles, showing a positive population trend. Through a Population Viability Analysis and Vortex program (Lacy *et al.*, 2003) an estimation of 86% probabilities of survival for the species in 500 years was obtained taking into account an initial population of 30,000 individuals under heavy stress conditions (Sánchez y Álvarez, 2006).
4. As part of the recommendations from the Animals Committee (AC23; Geneva, April 2008) and the Crocodile Specialist Group of IUCN (CSG-IUCN) during AC23, and aligned with CoP15 recommendations, Mexico promoted the development of the Monitoring Program of Morelet's Crocodile Mexico-Belize-Guatemala to follow the status and trends of the main wild populations of the species in its whole range of distribution.
5. Based on results of the Trilateral Workshop Mexico-Guatemala-Belize on the Monitoring Program of Morelet's Crocodile (Mexico City, January 2010), in which 33 specialists gathered together including a representative of CSG-IUCN, CONABIO with support of the Wildlife General Office (Management Authority), published a Procedures Manual in 2011 as part of the program, which aims to homogenize field methods through standardized formats, and it also includes survey routes, periodicity and the marking system, among other things (Sánchez *et al.*, 2011; http://www.conabio.gob.mx/institucion/cooperacion_internacional/doctos/manualf_monitoreo_cocodrilo.pdf).
6. This progress was presented to the CSG-IUCN in its 20th meeting (Manaus, September 2010), where Biol. Hesiquio Benítez from CONABIO was nominated as Mexico's representative in such Committee. Since then, a Yahoo! Group was created to facilitate communication between crocodile specialists in Mexico (37 members until now) and to maintain the CSG-IUCN informed about Mexican activities in such matters, including the monitoring program. (<http://mx.groups.yahoo.com/group/CSG-MEXICO>).

* The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat or the United Nations Environment Programme concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.

7. In 2011, CONABIO signed four collaboration agreements with national institutions/organizations to establish coordinators for the four regions in which Mexico was divided to implement the program. Financing allowed for equipment and material acquisition, training of teams and field work that year.
8. The four coordination regions in Mexico are:
 - MXRC1- Gulf North: Tamaulipas, San Luis Potosí and North of Veracruz
 - MXRC2- Gulf Center: Center of Veracruz and North of Oaxaca
 - MXRC3- South: South of Veracruz, Tabasco, Chiapas and West of Campeche
 - MXRC4- Yucatan Peninsula: Center and East of Campeche, Yucatan and Quintana Roo.

MONITORING PROGRAM RESULTS (2011)

9. Starting in July 2011, Field surveys of 57 sites were achieved inside the four regions of Mexico. A total of 165 transects were done with a summed length of 1545 km where 902 specimens were recorded.
10. Data on Evaluation and Habitat Monitoring (EMH) showed that out of the 57 surveyed sites, in 78.9% of the cases habitat ranged from good to very good. Fisheries, cattle rising, tourism and human settlement were the most common humane activities at them.
11. Regarding night counting of crocodiles by visual detection (DVN), mean encounter rate at national level was 3.117 crocodiles/km, similar to that in CoPan Project in 2002-2004 (3.16 crocodiles/km). Following an exercise equivalent to that in CoPan Project, a population estimation can be obtained as follows:
 - CoPan (2004): 79,718 crocodiles of every size in Mexico.
 - Monitoring 2011: 78,633 crocodiles of every size in Mexico.
12. Distribution of sighted crocodiles, shows that most of them are young (33.4%), with a relatively big proportion of juveniles and sub-adults (32%) and an important fraction are adults and big adults (20.1%). All of this suggested a healthy population structure, which coincide with that obtained through captured individuals with the capture and marking methods (MRE).
13. A total of 128 individuals were caught. Sex ratio shows that 1.15 males are present for each female. Data and measurements of 42 individuals allow for length and weight correlations to assess the general physical status of animals, which was estimated as good both for females (90.9%) and for males (92.1%).
14. Information obtained in this phase is already compiled in a Database created and centered in CONABIO for that purpose.

WORKSHOP ON EVALUATION OF 2011 SEASON

15. During March 8th and 9th in Mexico City, the Workshop on Results Evaluation of the Monitoring Program of Morelet's Crocodile was held, which main objectives were: 1) to analyze and evaluate the monitoring program 2011 season results; 2) to share lessons learned and identify improvement opportunities to implement the program and, 3) to plan for 2012 season. More than 30 researchers, field technicians, government representatives of Mexico and Guatemala, some NGOs and a representative of the CSG-IUCN attended the meeting.
16. Among the main findings in the workshop to improve monitoring of the species in 2012, were:
 - The final list of monitoring sites, adding some of them to strengthen the geographical design of th program.
 - Field work in every coordination region will last four months (April-August).
 - To get staples more suitable for marking smaller animals.
 - Agreed improvements will be integrated into the standardize formats so the teams can update their activities in the field.
 - Improvements to the database, so specific automatic reports can be generated to facilitate analysis of information at a regional and national level.
17. On the other hand, a Mexican specialist in molecular studies presented current data on the subject in Mexico and offered the possibility of processing the tissue simples obtained through the monitoring program in order to improve the knowledge of genetic structure of *C. moreletii* populations, producing more

detailed data to assess their conservation status. Collaboration was left under consideration of participants of the monitoring program.

18. Finally, Guatemalan representatives announced their interest to initiate monitoring activities on 2012. In this regard, they proposed:

- To identify Guatemalan researchers that can participate.
- To conform a country working group.
- To train participants with the support of Mexican experts (a preliminary intention letter was signed between Guatemalan representatives and the regional coordinator of Mexico's Region 3).
- To initiate a trial survey phase in Guatemala on 2012, at least in one site.
- To evaluate a national monitoring proposal in Guatemala, subject to available funds and considering binational or trinational backing, support of the Academy, Private Institutions, NGO's and potential donors.

ACTIVIDADES EN EL FUTURO INMEDIATO

19. This results will be also presented at the 21th meeting of the CSG/IUCN (May 22th-25th 2012, Manila), together with Mexico's report to the Steering Committee.

20. The monitoring program 2012 season will start on April and results are expected by September.

REFERENCES

Domínguez-Laso, J., L. Sigler, O. Hinojosa y O. Sánchez. 2005. *Resultados del Proyecto "CoPan"*. Reunión Regional de América Latina y el Caribe del Grupo de Especialistas en Cocodrilos (CSG/SSC/IUCN)". Santa Fe, Argentina.

Lacy, R. C., M. Borbat, and J. P. Pollack. 2003. *Vortex. A Stochastic Simulation of the Extinction Process*. Version 9.42. Brookfield, IL: Chicago Zoological Society.

Sánchez, O. y J. Álvarez-Romero. 2006. Conservation status of the Morelet's Crocodile (*Crocodylus moreletii*) in Mexico. A proposal for its reclassification in the U. S. Endangered Species Act (ESA). Pp. 255 -264. En: *Crocodiles. Proceedings of the 18th working meeting of the Crocodile Specialist Group, IUCN*. The World Conservation Union; Gland, Switzerland, and Cambridge, England.

Sánchez, Ó., G. López Segurajáuregui, A. García Naranjo Ortiz de la Huerta y H. Benítez Díaz. 2011. *Programa de Monitoreo del Cocodrilo de Pantano (C. moreletii) México-Belice-Guatemala*. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO), Secretaría de Medio Ambiente y Recursos Naturales. México, D.F., 269 pp.