Promoting the conservation of Morelet's crocodile (*Crocodylus moreletii*) by sustainably managing it through community-based ranching activities in Quintana Roo, Mexico

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INTRODUCTION

Due to overhunting and unregulated skin trade, by 1970, Morelet's crocodile (*Crocodylus moreletii*) populations were threatened with extinction. This led Mexico to ban the commercial harvest of wild individuals. Since 1975, the species was listed in CITES Appendix I; prohibiting international trade for commercial purposes.

In 2004, a study to determine the status of Morelet's crocodile's wild populations in Mexico, together with an evaluation of its status in CITES (CoPan Project), was completed. In 2006, experts analyzed the results, and proposed a standardized monitoring program for their wild populations and habitat.

METHOD

The monitoring program used standardized sampling methods (habitat monitoring, spotlighting, mark–recapture, nest surveys) in specific monitoring units (fig 1, fig. 2).

Fig. 1 (left). Procedure manual for the monitoring program published in 2011. Fig 1 (right) examples of field work during the program.

The program was implemented for five breeding seasons (2011-2016). Encounter rate was 3.23 ± 1.46 ind/km. Potential habitat estimated was 22,833 ± 24km of rivers and water bodies. Population size was estimated around 73,960 wild individuals. 70% of the sites showed a general upward trend in their populations. All information was registered, and is available, in a centralized database (fig. 3).

Fig. 2. Distribution of *Crocodylus moreletii* in Mexico (in green) and monitoring units (in magenta).

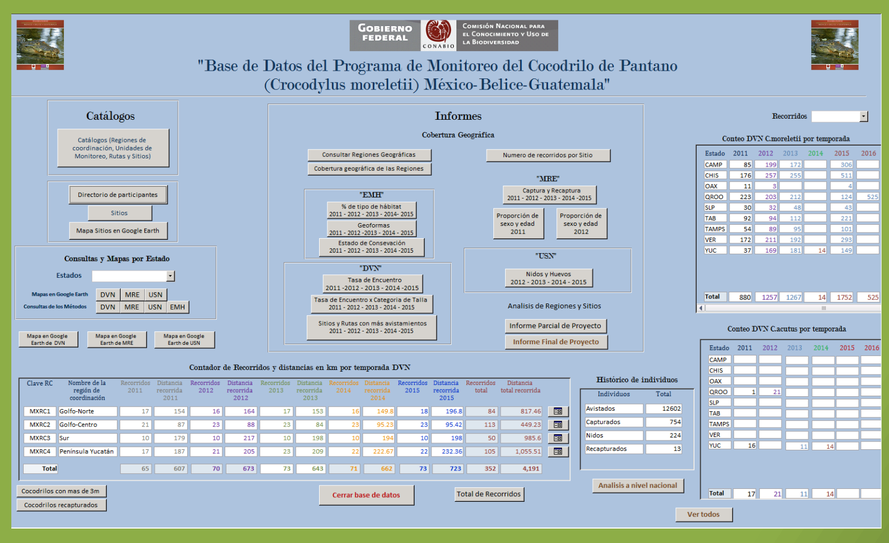

Fig. 3. Centralized database for capturing information on *Crocodylus moreletii* from the monitoring program.

Fig. 4. Hatchling born in captivity after incubation from an egg ranched in the wild.

RESULTS

The Information gathered on status and trends of wild populations of Morelet's crocodile through the monitoring program, guided decisions about conservation, management and sustainable use. Since populations showed recovery and are in good shape, a Pilot Project was developed.

Fig. 5 (left) Ranching Protocol of Morelet's crocodile. (Right-top) Local woman collecting eggs from a wild nest. (Right-bottom) Wild-ranched eggs in a community-owned incubator.

The goal of the Pilot Project is to establish an integrated production system of high-quality *C. moreletii* skins, based on the conservation of the species and its habitat, as well as on a sustainable, legal, and traceable scheme, with fair and equitable distribution of benefits throughout the productive chain, particularly for local communities.

Activities carried out by the communities within the Pilot Project, are guided by the Ranching Protocol for Morelet's crocodile (fig. 4, fig 5). Through the Protocol's implementation, standardized information on nests is obtained, which is the basis for defining sustainable harvest quotas and Non Detriment Findings (NDF). It also guides nest extraction, egg transportation and the incubation processes.

After the species was transferred to CITES Appendix II, and after over 40 years of national ban, in 2017, "Cocodrilos Chacchoben", was the first Management Unit for Wildlife Conservation (UMA) to sustainably and legally harvest wild Morelet's crocodile. After three months, the hatchlings were sold to "Cocodrilia" Farm for production of high-quality skins for the international leather market (fig. 6).

Fig. 6. Delivery of first captive-born Morelet's crocodiles from Chacchoben to the Farm "Cocodrilia".

A key factor for the success of the Pilot Project has been multistakeholder - multisectorial collaboration (fig. 7); making this a great example of mainstreaming the conservation and sustainable use of biodiversity for well-being.

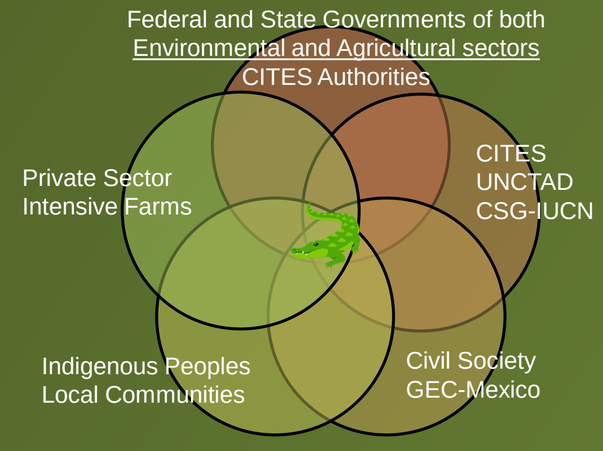

Fig. 7. Actors and sectors involved in the development and implementation of the Pilot Project.

CONCLUSIONS

Through the Pilot Project, the local community of Chacchoben, Quintana Roo, has benefited from sustainable use of Morelet's crocodile. Knowledge about the species and population trends has been generated through the monitoring program,

The crocodiles that were seen as a threat, are now valued and they represent an income. The community is conserving 4,686 ha of habitat that is also home to over 500 other species of fauna and flora.

AKNOWLEDGEMENTS

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