

How to Reintroduce a Crocodile?

Assessing the Effectiveness of Different Release Strategies for the Philippine Crocodile

Principal investigator: Mr. Willem VAN DE VEN (Mabuwaya Foundation)

Major threats

The Philippine crocodile, *Crocodylus mindorensis*, is a freshwater species endemic to the Philippines. With less than 250 non-hatchling individuals remaining in the wild, it is listed as critically endangered. The Philippine crocodile population was hunted to the brink of extinction in the 1980s and 1990s. Nowadays killing for fear or sport, habitat conversion and unsustainable fishing methods are the major threats to this species' survival in the wild.

Project significance

In 1999 a remnant population was discovered in the municipality of San Mariano. At the border of the Northern Sierra Madre mountain range, several breeding sites were discovered. A conservation project was started and institutionalized into the Mabuwaya Foundation in 2003. Although it was a very small population at that time, only 12 non-hatchlings were counted in 2000, this is still seen as possibly the only viable wild population left!



Mario dead - Killing of crocodiles does not often occur anymore, but when it does it has a big impact on the population, especially when a breeding adult crocodile like this one is found shot dead by people in San Mariano. ©Willem van de Ven



Juvenile released in Diwagden Lake - A head-started juvenile just after release back into the wild. ©Willem van de Ven

Project progress

In the 1980s already alarm bells were sounded for the Philippine crocodile, and the government responded by setting up a captive breeding program. The program was successful in generating a captive population, which stands around 800 individuals at the moment. However none of these crocodiles was ever released back into the wild until 2009, a project in cooperation with the Mabuwaya Foundation which was only partially successful.

In San Mariano in 2005 the team noticed that although crocodile killings had mostly stopped, thanks to an intensive communication, education and public awareness campaign, the population was not growing well. It was discovered that recruitment of hatchling crocodiles into the wild population was extremely low. Probably because habitat was disappearing, small ponds and marshes are converted into rice fields, the crocodiles had no choice but to nest next to fast flowing rivers. The result is that hatchlings are swept downstream to unsuitable habitat. Therefore a head-start program was initiated; nests are searched and protected, hatchlings

collected immediately after hatching and brought to a rearing facility where they are raised for around two years. After that they are released back into the wild with a greatly increased chance of survival.

The head-start facility, the Municipal Philippine Crocodile Rearing Station (MPCRS) doubles as an information centre. Hundreds of visitors come here to see the crocodiles and learn more about them and the wetlands they live in. Especially school children are often brought here to learn more about, and participate in, the conservation of the Philippine crocodile in the wild.



Juvenile eyeshine in Dunoy Lake - A night survey reveals a head-started juvenile at night because the crocodiles' eyes reflect bright red when a flashlight is pointed at it. ©Willem van de Ven



Nest protection by BS - Because habitat conversion is one of the major threats, and so is (accidental) destruction of nests, the sanctuary guards protect every Philippine crocodile nest we find. ©Willem van de Ven



Schoolchildren at the rearing - Education, especially of the next generation, is one of our main goals. Schoolchildren posing for the photo with a juvenile crocodile at the head-start facility (MPCRS). ©Willem van de Ven

We now also have many students, both Filipino and international, doing research for the head-start program. They are doing studies to post-release survival, health of the captive crocodiles, internships to look at the education capabilities and possibilities of improvement etc.

Our strategy is paying off! The population has increased dramatically over the last few years, and once again all age-classes are present, hatchlings, juveniles and sub-adults that were once in the head-start and soon these should become adults and start reproducing themselves. Between 2005 and 2011, 79 juveniles were released back into the wild. Although captive bred Philippine crocodiles seem to have much difficulty in adapting to wild conditions, post release monitoring of head-started crocodiles in San mariano revealed good adaptation and survival rates in the wild.

Major outcomes

- The hopeful sign that one of the first crocodiles to be released back into the wild in 2006, after spending several years in captivity, started reproducing successfully in 2008 and again in 2010.
- We are finding new breeding sites. In Tappa in 2009 and in Dadugen (see picture on the right) in 2010 and 2011.
- Crocodiles are dispersing through San Mariano. Crocodiles have travelled several kilometers and colonized new ponds and creeks. In January 2012 a juvenile crocodile was accidentally caught in a place many kilometers downstream of the nesting sites. Instead of killing the crocodile, which would have happened 10 years ago, the fisherman brought the crocodile to our rearing station and we released it back into the wild.
- The Philippine crocodile population is growing! From only 24 individuals in 2000, to 86 in 2011.



Jun releasing juvenile Dadugen - With the post release monitoring we recapture head-started individuals to keep track of their growth and survival. One of the sanctuary guards is here releasing one of these juvenile Philippine crocodile back into the lake where it was caught. ©Willem van de Ven



Further details of Philippine crocodile conservation projects can be read here:

<http://www.mabuwaya.org/index.cfm?p=C630E6BB-0519-C483-FB6790750C4A9C95>