



THE CAMBODIAN CROCODILE CONSERVATION PROGRAMME

Credit: Jeremy Holden

ENSURING THE RECOVERY OF THE CRITICALLY ENDANGERED SIAMESE CROCODILE PROJECT REPORT - APRIL 2017

Project lead: Dr Jackson Frechette, Fauna & Flora International

Country: Cambodia

Project timeline: May 2016 – July 2018

Species: Siamese crocodile

Status: Critically Endangered



People in Veal Veng marsh. Credit: Jeremy Holden

Once abundant across Southeast Asia, the Critically Endangered Siamese crocodile is perilously close to extinction having disappeared from more than 99% of its range during the past century due to wetland habitat loss and hunting. Today fewer than 250 wild adults remaining more than half of which are in Cambodia.

Fauna & Flora International is very grateful to PTES for renewing their support over two years to help advance efforts in Cambodia which will help to save this incredible reptile from extinction whilst also benefiting a host of other rare and endemic species that depend on the same wetlands.

The following report details the progress Fauna & Flora International (FFI) has made in the first year of this two year grant from PTES towards ensuring the recovery of the Siamese Crocodile in the wild. We are very pleased to report that at present we are on track to exceed our target release numbers of juvenile crocodiles into the wild. The success of this initiative continues to demonstrate its importance for the recovery of this Critically Endangered Species. Support to local crocodile wardens continues to deliver ongoing protection to crocodile sanctuaries in our target areas.

HIGHLIGHTS FROM 2016/17

- 12 purebred captive Siamese crocodiles (2 male adults and 10 juveniles) were donated from a farm in Siem Reap for breeding and release programmes. Six of them passed health checks in November and were released in to remote sanctuary of Cardamom Mountains in January 2017.
- A new enclosure (26m x 15m) with two pools was constructed at PTWRC for holding baby and juvenile crocodiles. The Species Fund in this first year has made a lasting impact on Siamese crocodiles. By improving our captive breeding program we are assuring the production of captive bred crocodiles well into the future.
- We continue to support 31 crocodile community wardens to protect four key breeding sites and one release site. With this ongoing presence zero incidences of poaching have occurred in the last year (in contrast to high rates of poaching before wardens were deployed and before our outreach programmes began). Our protection and ecological restoration of the crocodile sanctuary sites will have a lasting impact of aquatic diversity, including endangered otters, fish, and turtle species.

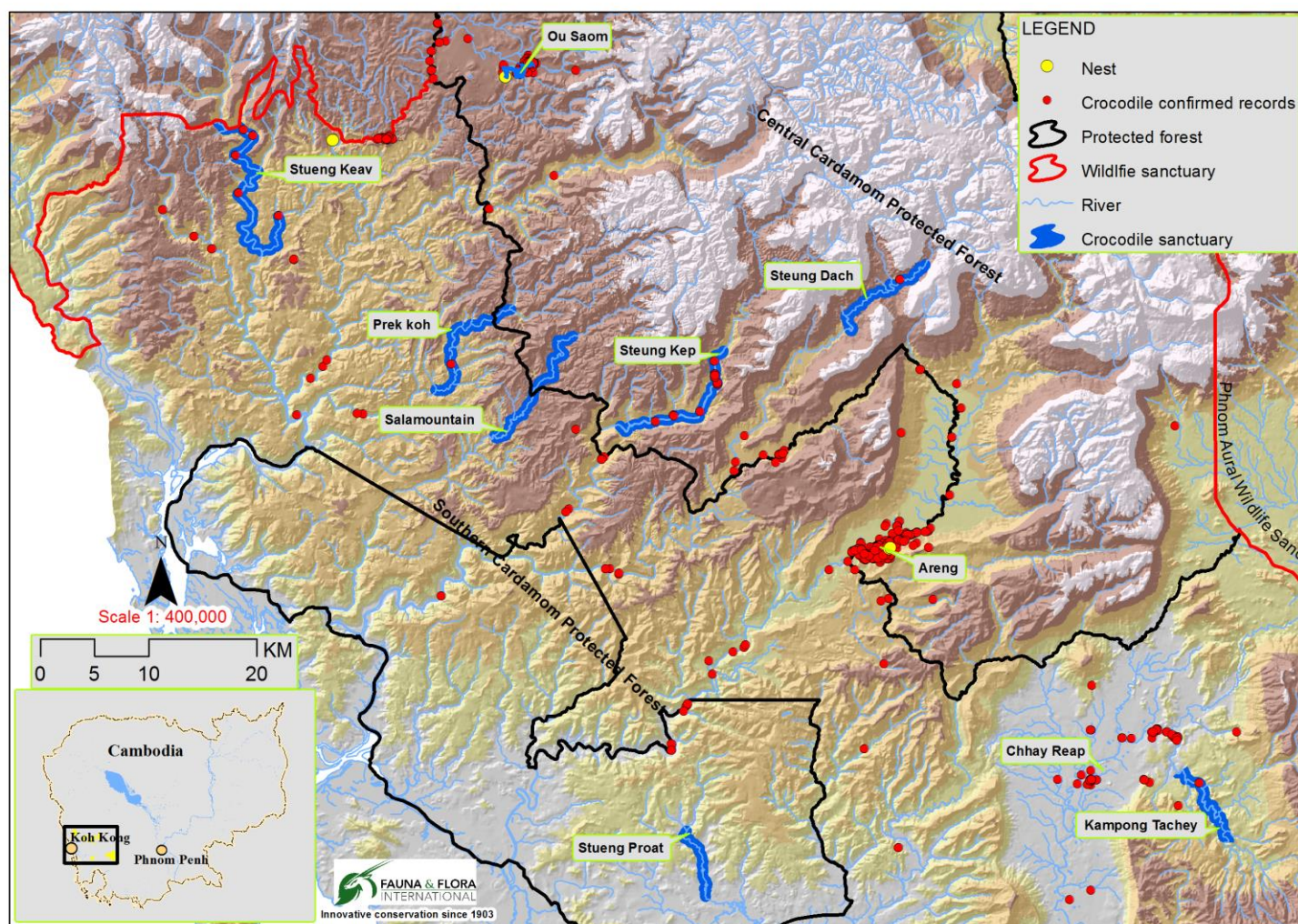
OUR OBJECTIVES

1. REINTRODUCTION: The recovery and viability of wild populations is enhanced through the release of 10 healthy captive-bred, confiscated and headstarted crocodiles into protected sanctuaries.

2. SANCTUARIES: Over 50% of Cambodia's wild crocodiles are in sites that are effectively protected and managed as crocodile sanctuaries.

3. MONITORING: impact and efficacy of this program on the wild Siamese crocodile populations in monitored and shared.

OUR LOCATIONS



VEAL VENG MARSH – Ou Saom Commune, Veal Veng District, Pursat Province. Marsh with **40-50 Siamese crocodiles**. Human population: four villages, 204 families (most are indigenous Khmer Daeum).

KAMPONG CHREY RIVER - Chhay Reap/ Dong Peng Commune, Sre Ambel District, Koh Kong Province River with **20-30 crocodiles**. Human population: Five villages, 829 households (most are indigenous Khmer Daeum).

STEUNG KIEW RIVER- Baklong Commune, Mondulseima District, Koh Kong Province. This is the release site for our 2016 release. It is not near any villages, which provides an additional level of protection.

ARENG VALLEY - Pralay and Chumnoab Communes, Thmar Bang District, Koh Kong Province. River and adjoining lakes with approximately **30 crocodiles**. Human population: Seven villages, 181 families (most are indigenous Khmer Daeum).

UPPER STEUNG TATAI RIVER- Tatai Leu Commune, Thma Bang District, Koh Kong Province, has around **11 crocodiles**. Human population: Three villages, 128 households (most are indigenous Khmer Daeum).

PROJECT PROGRESS

REINTRODUCTION:

Activity1.1 Breed and rear healthy Siamese crocodiles in national captive breeding facility:

In the past year significant improvements have been made to our captive breeding program which will have a long term impact upon the recovery of the species in Cambodia.

A captive breeding project officer has helped improve our husbandry, management, and facilities. He attended the Association of Zoos and Aquariums' Crocodilian Biology and Captive Management Training Course in April 2016, a course that greatly improved the team's capacity. The course has helped improve overall care, handling, dietary needs, enclosure design, training, breeding, and general management of captive animals. In October 2016, our long-time collaborator and crocodile husbandry expert Lonnie McCaskill came to provide additional support and training for our breeding program. Overall, he was impressed with the improvement and quality of our program (report available upon request).

Through engagement with crocodile farms, we have acquired two new adult males for breeding. We now have three adult males and five adult females for breeding. We also received 10 juvenile crocodiles for wild release from the farm. To accommodate our increased stock (current total stock is 28), we have constructed two new large enclosures.

In December 2016, Dr. Paolo Martelli, Chief Veterinarian, Ocean Park Hong Kong, and Vice-chairman, Veterinary Science Group of the IUCN-SSC-CSG, conducted health checks on 20 purebred Siamese crocodiles in our facility

at PTWRC, including the 10 donated from the farms for release. Six of the ten were deemed healthy for release (see below).

Overall, we are optimistic that our captive breeding program improvements and partnerships with crocodile farms will provide the opportunity to release a much greater number of crocodiles into the wild. It is hoped that the numbers of hatchlings will increase; all adult pairs have been observed copulating which is a positive sign.

We also have a partnership with Royal Zoological Society of Scotland, who will work with the conservation genetics lab we established at Royal University of Phnom Penh this year to improve our ability to test for crocodile hybrids quickly and effectively.

Our goal this year is to improve the in-country genetics capacity so that we can quickly and effectively identify hybrid crocodiles.

Activity1.2. Prepare and release 10 more Siamese crocodiles to a safe location in the wild:

After health checks conducted by crocodile veterinarians from Ocean Park Hong Kong, we released six juvenile crocodiles into a new sanctuary site in the Cardamom Mountains. But several of the crocodiles have been observed on subsequent monitoring visits to the release site. We have an additional seven two-year old crocodiles that we bred at our facility which we hope will grow large enough to be released early 2018. A farm in Siem Reap has offered to donate 50 crocodiles for release, but we just need to ensure that we have a fast and reliable genetics lab to ensure they are pure Siamese.

Siamese crocodile hatchlings. Credit FFI



SANCTUARIES:

Activity 2.1. Develop management plans and regulations for crocodile sanctuaries using a participatory process:

Following community consultation three crocodile sanctuary management plans have been drafted (for O'Som, Tatai Leu, and Chhay Reap). In early 2016 all of our focal crocodile areas became nationally protected under the Ministry of Environment (MoE). We are waiting for the MoE to begin the process of developing management plans for the new protected areas, in which we can incorporate crocodile specific management guidelines.

Activity 2.2. Encourage and support local communities to protect and manage the crocodile sanctuaries in accordance with management plans:

The project supports 31 crocodile community wardens who patrol five crocodile sanctuaries of the Cardamom Mountains (O'Som, Areng, Chhay Reap, Tatai Leu and Steung Khiew). Based on current estimates these five sanctuary sites hold approximately 135 crocodiles, equalling 60% of Cambodia's wild population (estimated at 224). Wardens are using SMART patrols system within their sites to help us monitor, evaluate and respond to threats in each site more effectively; we receive reports from wardens on a monthly basis. Based on 2016 annual SMART report, our crocodile wardens have patrolled over 5690 Km across five sanctuaries.

Zero cases of poaching recorded from all the sites (in contrast to high rates of poaching before wardens were deployed and before our outreach programmes began). However, human activities especially fishing is having an increasing impact upon these areas. FFI will focus support to help community warden to trial solutions in the next year.

MONITORING:

Activity 3.1. Monitor crocodile status, abundance and reproduction in the sanctuaries

Annual monitoring and nest surveys were conducted in O'Som, Areng, Chhay Reap, Tatai Leu and Steung Khiew. All data were entered into a CCCP National database and these data showed that populations of these sites are stable at around 135 individuals. Unfortunately no nests were found in any of the project sites in 2016. This is understandable due to the infrequency of breeding and the fragmentation of populations. However, we have proof of breeding in the wild as we found a small groups of hatchlings and several small faeces of crocodiles in Veal Veng marsh and Chhay Reap in 2016 & 2017. Naturally breeding only occurs once per year and only around 1% of laid eggs will result in a breeding age crocodile. Populations at this stage are still small and fragmented and In order to double the population there would need to be 13,500 eggs laid, which is far from what we are seeing in the wild due to populations being very small and fragmented. The wild populations will not recover on their own. As such a programme of captive breeding and release remains critical to the recovery of populations.

Activity 3.2. Study the survival and ecology of captive-bred Siamese crocodiles that were released in 2016 and 2018

In January 2016, we released seven crocodiles (three with radio-transmitters) to one of release sites. We conducted radio-tracking study with three crocodiles with transmitters up to five days per month since February 2016 and it was ended in May because of the river being too dangerous and/or access being impossible. The radio-tracking of these crocodiles were conducted again in December 2016 for five days very two months up to date. Based on data that were collected, the distances of movements each crocodiles with radio-transmitters are around 1Km up and downstream of where we released them.

Credit: Jeremy Holden



CHALLENGES

The biggest issues we face are low breeding at Phnom Tamao and the delays and difficulty in getting cost-effective reliable DNA tests to identify hybrids. Over the past year we have focused on captive breeding by building staff capacity, increasing our physical capacity, and acquiring two new breeding males. We hope that this improvement will yield a significant increase in numbers of babies bred at our facility. In order to improve access to DNA testing, we have partnered with Royal Zoological Society of Scotland to develop a method to use Single Nucleotide Polymorphisms to quickly identify hybrids. In the next year we hope that this will be up and running at our conservation genetics lab at the Royal University of Phnom Penh.

SUSTAINABILITY

Funding from PTES has been instrumental in helping to secure additional funding for the project including from the Flagship Species Fund which co-finances project activities. We also have secured funding from the Darwin Initiative to support sustainable livelihood development with the communities living near the crocodile sanctuaries. We will continue to fundraise to further support the project activities. Additionally, we are exploring other financing models, including how eco-tourism can fund crocodile habitat protection.

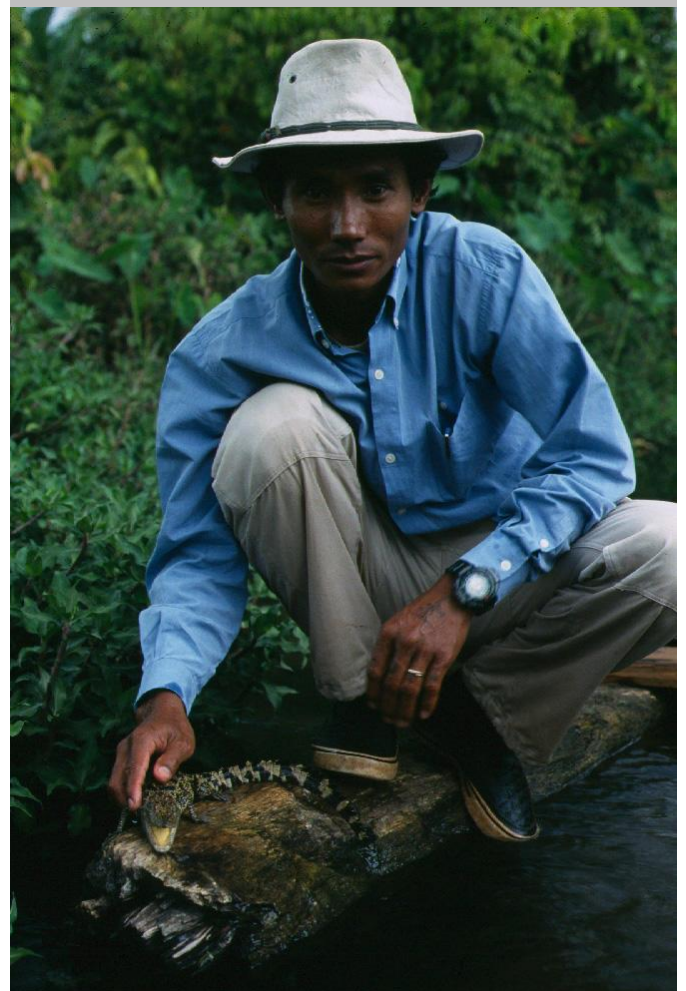
DISSEMINATION

Dr Jackson Frechette presented on the CCCP in two symposia at the Association of Tropical Biology and Conservation conference in Singapore and at the working meeting of the IUCN Crocodile Specialist Group held in South Africa.

We continue to pursue outreach at the community and national level. We frequently update our Facebook account, engage with the public at Phnom Tamao Zoo, and have used (and will continue to) radio to broadcast crocodile conservation information. In January crocodile messaging was broadcast twice a day every day on local radio. An estimated 22% of Cambodians use Facebook, 35% listen to the radio, and there are around 26 million mobile connections. Given the right strategy, we should be able to reach a large portion of the populace. We will work with a social marketing firm to develop a media strategy, which early discussions indicate that radio and social media is the easiest and cheapest way to reach the most number of people.



Studying nests. Credit FFI



Credit FFI

IF YOU HAVE ANY QUESTIONS OR
WOULD LIKE MORE INFORMATION
ABOUT THE CAMBODIA PROGRAMME
OR FFI MORE GENERALLY, PLEASE
CONTACT:

HANNAH BRAITHWAITE
SENIOR TRUSTS & FOUNDATIONS
ACCOUNT MANAGER
TEL: 01223 749027
Hannah.braithwaite@fauna-flora.org



THE DAVID ATTENBOROUGH BUILDING
PEMBROKE STREET
CAMBRIDGE, CB2 3QZ

WEB: www.fauna-flora.org
TEL: +44 (0) 1223 571 000
EMAIL: info@fauna-flora.org

REGISTERED CHARITY NUMBER 1011102

