CEPF SMALL GRANT FINAL PROJECT COMPLETION REPORT

Organization Legal Name:	Wildlife Conservation Society
Project Title:	Conservation of Siamese Crocodiles in Cambodia
Date of Report:	5 June 2013
Report Author and Contact Information:	Mr. Simon Mahood smahood@wcs.org

CEPF Region:
IndoBurma Hotspot
Strategic Direction:
1.1 Identify and secure core populations of 67 globally threatened species from overexploitation and illegal trade by implementing targeted, high-impact projects
Grant Amount:
$18,069
Project Dates:
Initially 15 February 2011 - August 2012, extended to 25 May 2013.
Implementation Partners for this Project (please explain the level of involvement for each partner):
Ministry of Environment: the Ministry of Environment (MoE) have overall responsibility for the management of the project site, Prek Toal Core Area.
Local community members: members of Prek Toal village take part in the birds nest protection scheme at Prek Toal. Some of these community members also guarded the soft-release area.
Kasetsart University (Thailand): conducted genetic testing of blood and tissue samples from confiscated crocodiles.
Fauna and Flora International: in 2012, FFI developed a national action plan for crocodile reintroduction in Cambodia. Prek Toal was included as a reintroduction site, in part based on lessons learned from this project, and WCS staff Steve Platt, Simon Mahood and Sun Visal commented on the document.
Angkor Centre for the Conservation of Biodiversity: A vet from ACCB completed the transmitter attachment.

Conservation Impacts

Please explain/describe how your project has contributed to the implementation of the CEPF ecosystem profile.

Although the project did not find any wild Siamese Crocodile in Prek Toal it contributed to the implementation of the CEPF ecosystem profile in a number of important ways. The project diversified the sort of protection activities that are conducted at Prek Toal so that they benefitted a wider range of CEPF priority species. Typically, at Prek Toal biodiversity protection activities focus on the waterbird colony; community members and MoE staff occupy a network of tree-top platforms to monitor and protect the waterbird colony. During the Siamese Crocodile project we were able to also establish check-points at the mouths of the three main rivers that provide dry-season access to Prek Toal Core Area, namely Prek Spot, Prek Da and Prek Preadamchou. Anyone without prior permission was refused entry to the streams, effectively preventing illegal fishing and other activities harmful to Siamese Crocodiles. These measures will have significantly reduced the threat to the Siamese Crocodiles released during the project, because the release site was located in a deep pool in the Prek Spot river, roughly in the middle of Prek Toal Core Area. Targeted and non-targeted catching of crocodiles by fishermen was previously one of the greatest threats to Siamese Crocodile at Prek Toal (and elsewhere in their range), although it was impossible to directly measure the impact of this new protection on remnant wild populations Siamese Crocodile it was the first time

that crocodile foraging habitat has been protected in such a way in Prek Toal. However, owing to the massive reduction in illegal fishing on the streams, large numbers of threatened waterbirds such as Greater and Lesser Adjutant could be seen foraging there during the breeding season, for the first time. Otters (either Hairy-nosed or Smooth: both have been confirmed in Prek Toal) were seen feeding in the streams on a number of occasions and rangers conducting silent night patrols by row-boat reported seeing small spotted cats on the river banks that were either Fishing Cat or Leopard Cat. Following the closure of the rivers there were many sightings of Silvered Langur in the trees along the river banks, presumably owing to reduced disturbance and reduced risk of poaching.

Please summarize the overall results/impact of your project against the expected results detailed in the approved proposal.

In addition to habitat and threatened species protection impacts detailed above, the project allowed us to evaluate the release of confiscated Siamese Crocodiles into Prek Toal Core Area and provided insights that would inform the design and implementation of future projects. The reintroduction had mixed success. Under the project we conducted genetic testing of eleven crocodiles confiscated from fishermen in Prek Toal over the last five years. One of these was a large male crocodile which had been caught in a fishing net a few years previously whilst the other ten were apparently taken by a fishermen from a single nest. However, genetic testing undertaken by Kasetsart University revealed that the large crocodile and six of the ten smaller crocodiles were hybrids. This meant that we only had four crocodiles to release rather than eleven. Health checks were conducted on the crocodiles and all were considered ready for release. Radio transmitters were attached to two of the four pure Siamese Crocodiles and all four were released into a soft release pen with access to open water and basking areas. It was intended that the crocodiles would spend a number of months in the pen (usually this ensures that after release they travel a shorter distance and are therefore easier to protect and monitor) and then when the flood waters of the lake rise during July they would leave the pen. However, during March just two weeks after release into the soft-release enclosure, one of the crocodiles died, a few days later the other three crocodiles dug themselves out. The death of the crocodile coincided with a very hot period during which a lot of dead fish were seen floating on the water surface, crocodile farmers in Prek Toal floating village also reported the deaths of a large number of captive crocodiles at this time. Unfortunately the crocodile that died in the soft-release enclosure was one of the animals with a radio transmitter. The other animal with a transmitter could not be located after it escaped using radio telemetry, although it and at least one of the other two crocodiles was seen by the team protecting the deep pool in the stream occasionally for a number of weeks. The escape of the crocodiles was at the time when the water level is at its lowest, and it was consequently difficult to monitor the escaped animals.

Please provide the following information where relevant:

Hectares Protected: **21,342**

Species Conserved: **Siamese Crocodile, Greater Adjutant, Lesser Adjutant, Otter sp., Silvered Langur**

Corridors Created: **None**

Describe the success or challenges of the project toward achieving its short-term and long-term impact objectives.

Ultimately, the project succeeded in protecting crocodile foraging habitat over a large area of Prek Toal, to the benefit of the newly released crocodiles, remnant wild crocodile populations, and the other threatened species that inhabit Prek Toal. A series of challenges were overcome to release three Siamese Crocodiles into Prek Toal, this in itself was an important outcome and a number of lessons were learned from the experience (see below). One unanticipated challenge was the change in management situation at Prek Toal part-way through the project. At the time of project design and initiation the MoE managed Biosphere Reserve Core Area almost completely overlapped with fishing lot no. 2. However in March 2012 the fishing lots were summarily cancelled and, in the case of lot no. 2, replaced with Fisheries Conservation Areas. This un-anticipated change in management has implications far beyond the each of the project.

Were there any unexpected impacts (positive or negative)?

The results of the genetic analysis provided information about the wild crocodile population in Prek Toal, although the range of potential explanations for the results obtained make it difficult to draw firm conclusions.

The large crocodile was known to have been caught in Prek Toal, but it was proved by genetic analyses to be a hybrid. This supports the theory that some/most/all 'wild' crocodiles that remain in Prek Toal are derived from escapes from crocodile farms, or at least are the result of matings between escaped hybrids and wild individuals. It was previously assumed that the floating crocodile farms in Prek Toal village were populated with pure Siamese Crocodiles, bred from wild animals caught in Prek Toal, and that therefore any escape incidents would almost certainly result in the release of pure Siamese Crocodiles. Because the large crocodile caught in a wild state in Prek Toal and used in the genetic analysis was a hybrid, it can probably be assumed that a certain percentage of the animals in floating crocodile farms are also hybrids, since it was from there that it was most likely to have escaped. However, it is known that the Tonle Sap was once naturally inhabited by wild Saltwater Crocodiles and well as wild Siamese Crocodiles, and it is plausible that when the wild populations of both species were at their lowest level (owing to hunting) and mates were scarce, that hybridisation occurred in the wild. If this has happened, then it is possible that the crocodiles that now inhabit Prek Toal constitute hybrids with no captive influence.

Of the ten crocodiles said to be from a single nest there are two potential explanations for the results of the genetic analysis. The first, and most likely, is that at some point between their confiscation and marking (prior to the CEPF project) some (or even all) of the individuals taken from the wild were switched with farmed hatchlings. However, female crocodiles can store sperm from multiple males, and there is therefore the possibility that all were hatched in the wild from a single nest and laid by a single female, but that four were fathered by sperm from a pure Siamese Crocodile and six by a hybrid male.

Lessons Learned

Describe any lessons learned during the design and implementation of the project, as well as any related to organizational development and capacity building. Consider lessons that would inform projects designed or implemented by your organization or others, as well as lessons that might be considered by the global conservation community.

Many lessons were learned that will guide the development of future projects to release Siamese Crocodile into Prek Toal Core Area.

Habitat protection: Based on its impacts on other species, and the reduction in illegal fishing, the habitat protection was a success. Dry-season river protection had not been trialled in Prek Toal prior to this project, but it will be continued during subsequent years if resources allow.

Reintroduction: The reintroduction was a partial success. It would have been desirable to release a much larger number of crocodiles into Prek Toal, however, it was found to be costly maintaining candidate crocodiles in captivity for the duration of the project. Conversely, although the process to obtain CITES permits for the export of the blood and tissue samples for genetic analysis was lengthy (there are no suitable facilities for conducting this part of the project in Cambodia) the administration cost would have been the same even if a much larger number of samples had been used. If the reintroduction of Siamese Crocodile is to be pursued in Prek Toal then a future project could be designed that marked and genetically tested a large number of crocodiles located within existing floating crocodile farms in Prek Toal village, for potential release rather than focussing on a small number of confiscated individuals. A better soft-release enclosure would need to be built. It might be best to release the crocodiles into the soft release enclosure when the water level is at its highest in October and then release them from the enclosure in January as the water level begins to drop rapidly. Although this would make the released

crocodiles hard to monitor because access is difficult at this time they might be less inclined to wander as fishing is easiest along the permanent water-courses.

Project Design Process: (aspects of the project design that contributed to its success/shortcomings)

To achieve the intended outputs, the project relied on a number of factors were assumed at the design stage, in particular that a large percentage of the crocodiles would be revealed to be pure Siamese Crocodiles. Although this was a reasonable assumption, it was not shown to be correct.

Project Implementation: (aspects of the project execution that contributed to its success/ shortcomings)

Because they breed in the water, Siamese Crocodiles fall under the jurisdiction of the Fisheries Administration (FiA). However, the main partner organisation for the project was the Ministry of Environment (MoE). At the time when the project was designed the MoE were the most appropriate partner, because WCS have over many years built their capacity at Prek Toal and they have an excellent track record in successful conservation at the site. Moreover, in 2011 when the project begun, the primary role of FiA at Prek Toal was to oversee the Fishing Lot. Now that the fishing lots have been cancelled and there is a Fisheries Conservation Area in Prek Toal (which overlaps almost completely with the MoE managed Core Area) the FiA have a clearer mandate for protecting the fisheries resources, which includes Siamese Crocodile. It might therefore be more appropriate to implement future Siamese Crocodile focussed projects in Prek Toal at least partially in partnership with FiA.

One of the major successes of the project was the crocodile habitat protection. The primary reason why this was so successful was that it used MoE staff and community members who had received prior training in protection and monitoring activities from WCS. This meant that it was easily integrated into ongoing management activities in Prek Toal Core Area.

Other lessons learned relevant to conservation community:

See comments above on the status of the wild crocodile population at Prek Toal.

ADDITIONAL FUNDING

Provide details of any additional donors who supported this project and any funding secured for the project as a result of the CEPF grant or success of the project.

Donor	Type of Funding*	Amount	Notes
Margaret A Cargil Foundation	A	$9,720	
WCS Core funds	A	$4,955	

***Additional funding should be reported using the following categories:**

A) Project co-financing (Other donors contribute to the direct costs of this CEPF project)

B) Grantee and Partner leveraging (Other donors contribute to your organization or a partner organization as a direct result of successes with this CEPF project.)

C) Regional/Portfolio leveraging (Other donors make large investments in a region because of CEPF investment or successes related to this project.)

Sustainability/Replicability

Summarize the success or challenge in achieving planned sustainability or replicability of project components or results.

The project successfully integrated crocodile habitat protection activities into ongoing waterbird protection and monitoring activities. The habitat protection activities were also integrated into the management of the new Fisheries Conservation Area that was designated part-way through the project in the place of the cancelled Fishing Lot because they also prevent illegal fishing over a wide area.

Summarize any unplanned sustainability or replicability achieved.

None.

Safeguard Policy Assessment

Provide a summary of the implementation of any required action toward the environmental and social safeguard policies within the project.

N/A

Additional Comments/Recommendations

None.

Information Sharing and CEPF Policy

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned, and results. Final project completion reports are made available on our Web site, www.cepf.net, and publicized in our newsletter and other communications.

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