Project Update: January 2019

Project Rationale

The globally vulnerable mugger crocodile is restricted to protected areas in Nepal, Suklaphanta National Park and its surroundings being one of the prime habitats of the viable mugger population in Nepal. Reports of human-crocodile interaction outside the national park have been increasing as crocodiles disperse to nearby agricultural land or fish farms where they are considered a nuisance by people. Persecution of crocodiles due to fear and economic loss on fish farming or agricultural land is increasing every year but relatively little concern for associated conflict, its impact on the livelihood of farmers and its mitigation measures has been given. The project is intended to inquire as to the cause, effect and measures to prevent the problem of human-crocodile interaction around the national park.

Fig 1: Map of Nepal and Study area (Image Credits: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community)
Location

Suklaphanta National Park (previously Suklaphanta Wildlife Reserve) lies in far western Nepal within Terai Arc landscape extending between 28° 42’ to 29° 03’ N and 80° 03’ to 80° 25’ E, covering an area of 305 km². The park is popular for its largest intact patch of tall grasslands of Tarai-Duar savanna and grassland, an endangered ecoregion (Olson and Dinerstein 1998) in the foothills of the Himalaya range, an important habitat for globally threatened species such as the royal Bengal tiger, Panthera tigris, swamp deer, Rucervus duvaucellii, hog deer, hispid hare, greater one-horned rhinoceros, Bengal florican, Indian python, and mugger crocodile amongst others (Bhuju et al. 2007).

Update Summary

We are nearly at end of the project. Almost all of the objectives have been reached with a few activities remaining. We have successfully conducted various field studies in Suklaphanta National Park and its buffer zone to collect various pertinent data on habitat, population and conflicts. Similarly engaging the local community towards conservation of mugger crocodile has been done through workshops, radio programmes and poster distribution.

We are also continuously working on gathering a few data related to breeding ecology of the species and providing a rock solid base on strategies to conserve the species in human-dominated landscapes outside the protected areas in Nepal.

All the activities already performed and those to follow are given in a table below:

<table>
<thead>
<tr>
<th>Objective 1: Habitat and population assessment within the landscape</th>
<th>Indicators</th>
<th>Achievements</th>
<th>Action Planned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1.1 Population assessment of the species Result of the population size and structure</td>
<td>Field Study for the activity has been completed. Photographic capture of the crocodiles in the area has been conducted in blocks throughout the national park where crocodiles are known to inhabit. The same place was visited thrice to make a photographic capture-recapture model of the species observation.</td>
<td>Data analysis is still in the way. We are currently looking identifying the species based on the scales and marks.</td>
<td></td>
</tr>
<tr>
<td>Activity 1.2</td>
<td>Habitat assessment of the species</td>
<td>Information about species biology</td>
<td>We are currently working on GIS and remote sensing-based wetland classification in the National park and its buffer zone.</td>
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</tr>
</tbody>
</table>

**Objective 2: Evaluation and mitigation measures for human-crocodile conflicts**

<table>
<thead>
<tr>
<th>Activity 2.1</th>
<th>Conflict assessment and perception</th>
<th>Information about conflict status and perception by people</th>
<th>Semi-structured questionnaires in buffer zones likely to be affected by the crocodiles were conducted to find the conflicts and perceptions among the residents ground the national park. More than 200 forms were collected from major conflict region.</th>
<th>Analysis will reveal the status of the conflict which we plan to do soon.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Activity 2.2</th>
<th>Contingent valuation</th>
<th>Information about people's willingness to conserve the species</th>
<th>Semi-structured questionnaires in buffer zones likely to be affected by the crocodiles were conducted to find the willingness to conserve the species around human settlements have been conducted. More than 200 forms were collected from major conflict region.</th>
<th>Analysis will reveal the status of the conflict which we plan to do soon.</th>
</tr>
</thead>
</table>

| Activity 2.3 | Potential conflict mitigation measures | Local people trained/ provided for crocodile preventive aquaculture. | Fish-farmers that are affected by the conflict have been identified. | We are in talk with the relevant stakeholders to determine the activity to be taken. |

**Objective 3: Promoted crocodile conservation by local people and relevant stakeholders**

<table>
<thead>
<tr>
<th>Activity 3.1</th>
<th>Conservation</th>
<th>Posters and Radio programs in</th>
<th>Radio jingles that relate to</th>
</tr>
</thead>
</table>
Awareness Programs

conservation of wetland, crocodile and earning benefits from the wetland and crocodiles are being currently aired by local radio station. Similarly, posters related to habitat ecology, threats, and conservation measures are distributed to major stakeholders and local people.

Activity 3.2
Strategy for conserving crocodiles in human dominated landscapes

Strategy guidelines for crocodile conservation in place

The strategy guidelines are drafted.

We are consulting to the relevant stakeholders about promoting the draft. It will not be done during project duration, but the update will be sent.

Fig. 2: Project Team Member collecting data on perceptions and conflicts
जलिय पारिस्थितिक प्रणाली संरक्षण गर्न मगर गोदीको संरक्षण गरो।

मगर गोदीको परिचय:
- कृषि बारे २४ प्रजाति मगर गोदीहरु मध्ये एउटा प्रजाति
- कृषिका नै संकटपन
- नेपालमा सरलतम लेख धनी वाइरोका कोटि प्राकृतिक
  वातावरणमा मात्र पाइने
- वातावरण: युक्त, नै र तल-तलीय
- जनीय पारिस्थितिक प्रणालीको निर्म रिकारी

संरक्षण कलरी:
- तल, तलीय एवं नविजित समय ḍाढा हरूलाई बनाउने
- तल, तलीय गोदीहरु बाट प्राकृतिक श्रमा पाइने
- नसिय, तल-तलीय धनी प्रणाली प्रतिवेदन लगाउने र
- जनीय अवस्थातीहरु प्रणाली प्रठम र नरारुने
- व्यवस्थित संरक्षण संस्कृत प्रणाली कार्यरत गर्न

संरक्षण किनः:
- तिनक धर्म गर्न अनुसार गोदी तरी गोदीको प्रतिक हो
- व्यवस्थापन अथा वाइरोको पालन गरी अवस्थाय गरी
- नविजित धनी नासिय एवं नविजित धनी जनीय प्रणाली
- जलिय पारिस्थितिक प्रणालीको संरक्षण गर्ने भएने
- योग्य पत्रिकाको सदस्यताको भएने हुन्छ अन्य
- जलिय पारिस्थितिक प्रणाली महत्त्व पूर्ण गर्ने व्यवस्थाय गरी जनीय पारिस्थितिक प्रणाली महत्त्वपूर्ण योग्यतम हिंदू

Fig.3: Poster Published for promoting conservation
Changes in Plan:
Some of the activities planned in the project could not be done according to the plan because most of the original team members had to leave the project as soon as it started, and gathering a new team from out of the project site was a difficult task. Also, some of the methodological approaches explained in the proposal, like population assessment using live capture, was changed to allow for time and use of new technologies were promote for photographic capture-recapture and GIS and remote sensing-based wetland classification.

References Cited:
