

Project Update: May 2018

Conservation of predator species has been and continues to be a challenge because they often overlap in resource utilization with humans. Moreover, there is a general lack of in-depth knowledge about their ecology and natural history. In the Kerio Valley, the Nile crocodile (*Crocodylus niloticus*) is an example. The species competes directly or indirectly with humans for space and resources. In many cases, they are often considered a direct threat to domestic animals, livestock and human safety.

The Nile crocodile is currently listed as Least Concern (LC) in IUCN Red List and included in the Appendix I of the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).

Currently, there are no management plans for the Nile crocodiles in Kerio Valley and this project will have significant contribution to the definition and establishment of species conservation priorities.

In order to have an understanding of how human-crocodile conflict (HCC) is affecting local people and Nile crocodiles in the Kerio Valley, I conducted a survey of 250 locals in the region.

The localities were chosen for this survey for two primary reasons;

- a) The information gathered will be used in the next stages of this project, and
- b) Road accessibility: Though poor, are in better condition compared to the more remote areas. This made it easier to conduct the survey in a reasonable amount of time.

My study evaluated the interaction between humans and Nile crocodiles from a qualitative approach of social research and used semi-structured interviews to determine human-crocodile interactions in the communities along the Kerio River Basin in the Kerio Valley.

Working in consultation with Mr Evans Koech Kimeres, who is my project team member and the coordinator for survey on HCC, we recruited eight data collectors to take part in the survey study. The selected individuals are students from Kerio Valley who are enrolled in various universities and colleges in Kenya. A 1-day refresher training was organised at Spotline Hotel in Kabarnet town, the headquarters of Baringo County. During the training, we went through the data collection tools to ensure that the data collectors understood the questions sought and probing to ensure that detail information was obtained. After the data collection, we convened a meeting at the same venue. This provided a platform for data collectors to share their experiences and challenges during the survey period.

Hence, in this report, I describe the collected data on Nile crocodile conflicts to help assess future management programs in the Kerio Valley within the context of reducing HCC, without jeopardizing conservation goals.

The project activities generally focused on the following specific objectives;

- a) Conducting survey among the local communities along Kerio River in Kerio Valley to assess their knowledge, attitudes and perceptions (KAP) regarding Nile crocodiles.
- b) Investigating localities where HCC occurs across the study area in the Kerio Valley.
- c) Identifying and recommending places to install 'crocodile-warning' signboards.

The activity started in March 2018 and ended in April 2018. Eight villages along the Kerio River basin were involved where social approach was used through interviews and locals interviewed were chosen under the following criteria;

- a) Local people who interact with Nile crocodiles due to their daily activities.
- b) Local people living near to the Nile crocodile habitats.
- c) Local people affected by Nile crocodiles in the past.

Generally, locals interviewed were asked about three topics;

- a) Part One: Basic Information about the interviewee.
- b) Part Two: Experience of conflict with Nile crocodiles.
- c) Part Three: Solutions to HCC.
- d) Part Four: Conservation education awareness.
- e) Part Five: Retaliation Killing.
- f) Part Six: Traditional methods of reducing HCC.

(Sample questionnaire: Appendix 1)

In total, 250 interviews were conducted with locals all of whom were born in Kerio Valley and have been living in the community.

- a) Youth (aged between 18 years and 29 years), and
- b) Adults (aged 30 years and above).

The survey revealed that human-crocodile interactions were produced by human activities related directly or indirectly to the rivers and wetlands.

In this case, activities with direct relationship were considered those that people do inside or along the banks of rivers, community dams and shores of Lake Kamnarok. Examples of direct activities are;

- a) Extraction of river products (fish, sand).
- b) Fetching water in Kerio River/Lake Kamnarok/community dams.
- c) Recreational/touristic by the Kerio divers.
- d) Swimming.

- e) Movement of livestock through wetlands.

The activities with indirect relationship were those which were not made in the rivers, but near to them for example;

- a) Working in farmlands,
- b) Trips to rivers or wetlands. and
- c) Daily activities made by the riverside and dams.

Table 1: Location, Sub-Location & Name of data collectors

Location	Sub-Location	Data Collectors
Kiboino	Sironoi	a) Ms. Lily Kimosop
	Kiboino	b) Mr. Hesbond Kemboi
Lelmen	Lelmen	c) Mr. Edwin Kiptoo
	Kapyemit	d) Mr. Gerald Kipyegen
Kababarnet Soi	Salawa	e) Mr. Henry Kimetto
	Kimoso	f) Mr. Hillary Kiplagat
Kabutiei	Muchukwo	g) Ms. Sylvia J. Kiyai
	Katibel	h) Mr. Dillian Kandie

In addition to administration of questionnaires, a focus group discussion was organised with children (aged between 7 years and 17 years). The focus group sessions were participatory and interactive. Generally, the probes for discussion were divided into five core themes:

- a) Section 1: Knowledge, attitudes and perceptions (KAP).
- b) Section 2: Human-crocodile conflict (HCC).
- c) Section 3: Nile crocodile habitat status and conservation.
- d) Section 4: Retaliation killings,
- e) Section 5: Nile crocodile conflict management.

(Sample Focus Group Discussion Guide: Appendix 2)

In every focus group discussion, the discussion was conducted by two people, the moderator who led the discussion and observer who supported the moderator. Both moderator and observer were asked to be charismatic, friendly, not to be timid, authoritative, or judgmental. The moderator had the responsibility of introducing each question and encouraging all focus group participants to contribute to the discussion, asks follow up questions (probing) until every topic was exhausted. Each focus group discussion involved a group of 10 children from villages in the study area and lasted between 60 and 90 minutes. The setting where the focus groups took place was selected and prepared ahead of time to ensure that the group remained undisturbed for the length of the focus group. The discussion was semi-structured, guided and the topics of discussion for the group were well defined before the focus group began.

Table 2: Findings about Human Crocodile Interactions

Findings about Human Crocodile Interactions	
Crocodile Livestock/Domestic animal Attacks:	Crocodile Human Attacks:
1. Livestock drinking water in Kerio river	1. People swimming
2. Livestock grazing inside the drying Lake Kamnarok	2. Locals fetching water in rivers/community dams.
3. Livestock drinking water in community dams	3. People crossing the Kerio river
4. Domestic animals e.g. dogs, cats and chicken	5. People fishing in the Kerio river
	6. Children going to school

The reaction after a Nile crocodile attack was that:

- a) Most of the time, locals killed one or more crocodiles while looking for “the guilty” one.
- b) Nile crocodiles are killed because of their attacks on people, domestic animals and livestock.

According to the study, the locals perceive Nile crocodiles as dangerous and represent a risk for humans, domestic animals and livestock. Local residents who prefer a scenario without Nile crocodiles in Kerio Valley were mostly those who had no interaction with them. Therefore, it is clear from this study that interaction between humans and Nile crocodiles are influenced by activities carried out by people in the rivers, community dams and wetlands.

Most of locals interviewed admitted that attacks to people, livestock and domestic animals are the major suffering they face with Nile crocodiles. This is the worst scenario of interaction and it is the major cause of the conflict.

Next step: Development of public safety programmes.



Above photos: Refresher training on data collection conducted at Spotline Hotel, Kabarnet-Baringo County (Left project coordinator Mr. Johnson Kiprop and project team member Mr. Evans Koech Kimeres-Right)



Above photo: Data collector, Ms. Sylvia J. Kiyai conducting focus group session.



Above photos: Data collectors conducting focus group sessions with children. Administration of questionnaires on Human Crocodile Conflicts (Left) and children enjoying light refreshment after the focus group discussions (Right)



Above photos: Local resident showing a carcass of a goat devoured by Nile crocodiles (Left) and conflict hotspot known for regular HCCs (Right)



Above photo: A tributary of Kerio River, the major inlet of Lake Kamnarok flowing from the Tugen Hills; a significant catchment threatened by charcoal burning, illegal/commercial logging and human encroachment.



Above photo: View of former Lake Kamnarok taken from Iten View Point, Elgeyo Marakwet County.





Above photos: Data collectors sharing their experiences and challenges during the process of collecting data in the field.





Above photos: Data collectors sharing their experiences and challenges during the survey period.

Appendix below:

Appendix 1



Human Crocodile Conflict (HCC) Survey Questionnaire

Human Crocodile Conflict Study in Kerio Valley-Kenya

Date:

Questionnaire No:

Part One: Basic information about the interviewee

1. Name: _____; Age: ____; Sex: (Male/Female); Education: _____
2. Location: _____; Village: _____
3. Number of family members: ____; Household economic status: _____

Part Two: Experience of conflict with Nile crocodiles

4. Have you or your family member experienced conflict with Nile crocodiles?

Yes; No

If yes;

A) What type?

- i. Nile crocodile attacking human;
- ii. Nile crocodile attacking livestock;
- iii. Nile crocodile attacking domestic animal;
- iv. Nile crocodile competing for resources i.e. water /space with:
 - (a) Humans;

(b) Livestock;

(v) Other

B) What time did the incident took place? (Day/night)

C) How was the conflict? (Description of the Nile crocodile conflict)

D) What was suffered?

E) Local response to the incident;

F) Why do you think this incident happened?

- i. Human activities inside Nile crocodile habitat;
- ii. Lack of prey for the Nile crocodile;
- iii. Too many Nile crocodiles in Kerio River/Lake Kamnarok/Community dams
- iv. Human negligent practice;
- v. Other

G) Did you or your family member receive any compensation?

Yes; no

If yes;

(a) What kind?

(b) How much?

(c) From whom?

Part Three: Solutions to Human Crocodile Conflicts

5. What are some of the recommendations do you think to the solutions for Human Crocodile conflict issues?

- i. Killing of Nile crocodiles;
- ii. Moving/Relocating problematic Nile crocodiles to a different place;
- iii. Fencing of water fetching points/community dams/building river bridges;

- iv. Avoiding Nile crocodiles;
- v. Compensation for Nile crocodile conflicts
- vi. Understanding Nile crocodile biology and behavior;
- vii. Other;

Part Four: Conservation awareness

6. Conservation awareness

A) Are you aware of Nile crocodile protection laws in Kenya?

Yes; No;

If yes;

Do you agree that Nile crocodiles need to be protected in the Kerio Valley?

B) Is there a penalty for killing Nile crocodile?

Yes; No

C) Have you or your family members attended any Nile conservation awareness programs?

Yes; No;

If yes,

D) What type of programs?

E) In your opinion why Nile crocodiles should be protected?

- i. To improve tourism;
- ii. For scientific study;
- iii. To maintain ecological balance;
- iv. For genetic resources;
- v. For future breeding;
- vi. For sale to the zoos;
- vii. Other

Part Five: Retaliation Killing

7. Did you or your fellow villagers kill any Nile crocodile that attacked livestock, domestic animal or people?

Yes; No;

If yes,

- i. When?
- ii. How?
- iii. Any penalties for this killing?

Part Six: Traditional methods of reducing Human Crocodile Conflicts

8. What do you think are the traditional methods of reducing Human Crocodile Conflicts or negative impacts of conflict?

- i. Method one:
- ii. Method two:
- iii. Method three:

Appendix 2



Focus Group Discussion Guide on Human Crocodile Conflicts in Kerio Valley, Kenya Facilitator's welcome, introduction and instructions to participants

A: Welcome note

Thank you for volunteering to take part in this focus group. You have been asked to participate as your point of view is important. I realize you are busy and I appreciate your time.

B: Introduction

This focus group discussion is designed to assess your current Knowledge, Attitudes, and Perceptions towards Nile crocodiles and the current state of their habitats. The focus group discussion will take no more than two hours.

C: Ground rules

- The most important rule is that only one person speaks at a time. There may be a temptation to jump in when someone is talking but please wait until they have finished.
- There are no right or wrong answers
- You do not have to speak in any particular order
- When you do have something to say, please do so. There are many of you in the group and it is important that we obtain the views of each of you
- You do not have to agree with the views of other people in the group
- Does anyone have any questions?
- OK, let us begin

D: Warm up

- First, I would like everyone to introduce themselves. Can you tell us your name?

E: Introductory question

I am just going to give you a couple of minutes to think about your experience with Nile crocodiles, your thoughts and feelings about them. Is anyone happy to share his or her experience?

F: Guiding questions

Section 1: Knowledge, Perceptions and Attitudes towards Nile crocodiles

- What are the attitudes of you and others towards Nile crocodiles? (What do people think/say?)
- What drives the positive/negative reaction towards Nile crocodiles? If negative, how could it be rectified?
- What are your current knowledge on Nile crocodile biology and behavior?
- When thinking back to how you first heard of Nile crocodiles and when it was first shown to you, was it a negative or positive introduction? Do you think that if the introduction was done in a better way it could have changed your attitude and perceptions towards Nile crocodiles?
- Do you feel comfortable with Nile crocodiles living within your environment?
- How many Nile crocodiles do you prefer to see? Is it more than they are now? Is it less than they are now?

Section 2: Human Crocodile Conflicts (HCCs)

- In the past 7 years, has your village(s) ever had conflicts with Nile crocodiles? If yes, what type of problem(s)?
- Do these conflicts occur in the Lake, rivers or community dams? At what time i.e. day or night?
- How do conflicts with Nile crocodiles affect your livelihood?
- In your opinion, have conflicts with Nile crocodiles in your village increased or decreased in recent years? Why do you say so?
- What are your thoughts on the solutions to human crocodile conflicts? (Explore different options)

Section 3: Nile crocodile Habitat Status & Conservation

- What do you think about the importance of conserving Nile crocodiles and their habitats?
- Do you think protecting and conserving Nile crocodile habitats is likely to resolve human crocodile conflicts? If not, why not?
- What are the main issues affecting Nile crocodiles and their habitats?
- What are the barriers to conserving Nile crocodiles and their habitats? What do you think can be done by the local people to improve the current state and quality of Nile crocodile habitats?

Section 4: Retaliation Killings

- If livestock are killed or people are attacked by Nile crocodiles, do people retaliate and how?
- What usually happens when locals follow this route?
- Do you think it is wrong to kill crocodiles in retaliation?
- In your opinion, do you think there is a penalty for killing Nile crocodiles?

Section 5: Nile crocodile Conflict Management

- In your opinion, who is primarily responsible for conservation and management of Nile crocodiles in your area?
- In your opinion, who should be responsible for Nile crocodile conservation in your area? Why do you say so?
- In your opinion, what do you think should be done to reduce conflicts with Nile crocodiles? Why do you say so?
- Do you think there is need for local education and awareness creation about the Nile crocodiles? Is there anything you feel should be improved for better management of Nile crocodiles?
- Do you think there is need to install crocodile warning signs? If yes, why and where?

G: Concluding question

- Of all the things we've discussed today, what would you say are the most important issues you would like to express about Nile crocodiles and their habitats?

H: Conclusion

- Thank you for participating. This has been a very successful discussion
- Your opinions will be a valuable asset to the study
- We hope you have found the discussion interesting
- If there is anything you are unhappy with or wish to complain about, please contact the project leader or speak to me later
- I would like to remind you that any comments featuring in this report will be anonymous