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CITES NON- DETRIMENT FINDINGS

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PRESENTATION ON

NDF Studies: The Status of and Trade in Nile  
Crocodile (*Crocodylus niloticus*) in Kenya

BY

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The Status of and Trade in Nile crocodile (*Crocodylus niloticus*) in Kenya- Non –Detriment Findings process

A Case Study presented at the International Expert Workshop on CITES Non-Detriment Findings, Cancun (Mexico), 17-22 November 2008



## BACKGROUND

### The Species- Nile Crocodile (*Crocodylus niloticus*)

- Include 3 sub-species

#### Taxonomy:

Class: REPTILIA

Order: Crocodylia

Family: Crocodylidae

Scientific Name: *Crocodylus niloticus* (Laurenti, 1768)

Common Names : English: Nile Crocodile

: Swahili: Mamba





# Nile Crocodile-The Species

*Crocodylus niloticus*





# Species Habitat

[www.kws.go.ke](http://www.kws.go.ke)



# CONSERVATION STATUS

- Current IUCN Classification: Least Concern

1990 : Vulnerable (Baillie & Groombridge, 1990). In 1994 review, it was not listed (Groombridge, 1993),

1996: Lower Risk (IUCN, 1996), 2000 (Hilton-Taylor, 2000), & 2003 (IUCN, 2003).

- CITES Listing: Appendix I except populations of Botswana, Ethiopia, Kenya, Madagascar, Malawi, Mozambique, Namibia, South Africa, Uganda, the United Republic of Tanzania [subject to an annual export quota of no more than 1600 wild specimens including hunting trophies, in addition to ranched specimens], Zambia and Zimbabwe that are in Appendix II



- The Nile crocodile is distributed in suitable habitats throughout Africa and Madagascar
- Wild Population estimated at 250-500,000 specimens
- General population trend: increasing but habitat shrinking





## National status- The reason for NDF Process

Purpose:

Determining harvesting levels of specimens of Nile crocodile (*Crocodylus niloticus*) from the wild for commercial ranching and if the harvesting is detrimental to the survival of the species





## Data source/references

- Species population surveys
- Assessments of species abundance in different areas designated as harvesting zones-Egg collection returns
- Reported performance of licensed ranching operations
- Trade levels
- Human-crocodile conflict data



## Distribution mapping

- Mapping of the species' habitats

(all fresh water systems with a special focus on the major water bodies including: L.Turkana, L. Baringo, L.Victoria, Mara river, Ewaso nyiro river, Lorian Swamp, Tana River , Athi/Galana/Sabaki river & Ramisi river.







# Methodology: Population estimates

- Regular aerial and nightlight surveys on both the general and specific population and nest sites, especially in areas of interest (collection for utilization and conflict)

## **Spotlight censusing method**

- Counting using nocturnal spot –light count method  
*(most accurate compared to aerial and day counts)*
- Latest count conducted in 1995 for Tana River system (Tana river basin covers 20% of Kenya's land mass)



Spotlight census of the Nile crocodile (*Crocodylus niloticus*) along the Tana River, from Garissa to Kipini April 1993. A report for KWS research Department Nairobi, Kenya. **Chira R.M. (1993).**

Crocodile egg collection along the Tana River. A report for KWS Research Department Nairobi, Kenya. **Chira R.M. (1994).**

Spotlight census of the Nile crocodile (*Crocodylus niloticus*) along the Tana River, from Garissa to Kipini, August 1995. A report for KWS Research Department Nairobi, Kenya. **Chira R.M. (1996).**

Spotlight census of the Nile crocodile (*Crocodylus niloticus*) in five Tana River Dams. A report to Kenya Wildlife Service, Nairobi. **Chira R.M. (1997).**



Nightlight surveys on both the general and specific population and nest sites, especially in areas of interest (collection for utilization and conflict)

- Population numbers unknown

Lower reaches of Tana River system & L.Turkana areas of utilization

- ❖ Tana river system has the biggest living population
- ❖ L.Turkana population estimated at 12,000 adult specimens





- Records submitted by those collecting eggs, using standard forms
- Records supplied by the Wildlife Staff on Problematic Animal Control throughout the country.



# Population estimates

**NILE CROCODILES LTD  
TANA RIVER CROCODILE EGG COLLECTION  
2007 TO 2008 SEASON**

COLLECTOR ID	NEST NO:	BOX NO:	NO.OF EGGS	WEIGHT RANGE	AV. WEIGHT	AV. WIDTH	AV. LENGTH	COLLECTION DATE	HATCHLING DATE	UNFERT.	ROTTEN	DEAD SHELL	NO. HATCHED	HATCHING %	HEAD LENGTH	TOTAL LENGTH	WEIGHT	REMARKS
RK 6	1	T 1	11	60 - 70	66	40.8	65.4	15.11.07	29.12.2007	0	0	1	10	90.9	4.06	25.74	53	
M2	2	T2	23	80 - 85	83	41.6	75.0	15.11.07	29.12.2007	0	5	13	4	17.4	4.04	26.68	60	
M1	3	T3	25	75 - 85	81	45	70.2	15.11.07	29.12.2008	0	4	13	8	32.0	4	26.06	54	
T1	4	T4	42	60 - 70	64	42.8	67.8	15.11.07	22/12/2007	4	1	5	32	76.2	3.88	25.64	50	
T3	5	T5	20	70 - 70	70	43.2	66.0	15.11.07	20/12/2007	0	6	3	11	55.0	3.96	26.32	48	
RK2	6	T6	16	70 - 80	75	43.8	67.6	15.11.07	25.12.2007	0	2	4	10	62.5	3.94	25.68	45	
RK1	7	T7	23	75 - 85	80	42	71.2	15.11.07	29.12.2007	0	3	6	14	60.9	4.04	26.04	55	
B1	8	T8	26	75 - 75	75	41.4	70.0	15.11.07	29.12.2007	0	2	12	12	46.2	4	26.04	51	
T2	9	T9	25	80 - 95	89	45.6	71.0	15.11.07	29.12.2007	1	0	4	19	76.0	4.06	27.4	65	
CH3	10	T10	21	70 - 90	80	44.4	72.0	15.11.07	02.04.2008	0	3	0	18	85.7	4	28.1	55	
CH4	11	T11	30	75 - 80	76	43.8	66.2	15.11.07	02.01.2008	0	25	0	5	16.7	3.96	28.32	56	
M3	12	T12	35	90 - 105	96	46	74.2	25.11.07	28.01.2008	1	20	1	13	37.1	4.02	29.76	58	
MGA1	13	T13	44	90 - 95	91	46	70.4	25.11.07	02.01.2008	0	6	0	38	86.4	4	28.9	56	
MAH6	14	T14	43	85 - 90	88	45.8	67.6	25.11.07	20/12/2007	4	2	0	37	86.0	4.08	29.18	55	
M3	15	T15	33	80 - 90	88	45.2	71.4	25.11.07	17.12.2007	0	0	0	33	100.0	4.06	28.3	58	
T6	16	T16	31	90 - 95	94	45.4	76.2	25.11.07	19.01.2008	2	6	1	22	71.0	4.02	28.46	61	
T7	17	T17	26	75 - 80	76	43.6	68.4	25.11.07	01/12/2007	2	0	0	24	92.3	4	27.28	49	
GAK10	18	T18	32	70 - 75	72	44.4	67.8	25.11.07	02.01.2008	3	2	0	27	84.4	3.98	28.5	54	
MH3	19	T19	20	100 - 105	101	46	68.2	26.12.2007	17.03.2008	0	0	1	19	95.0	4.22	29.6	60	
BA2	20	T20	21	100 - 100	100	45	73.8	26.12.2007	15.03.2008	0	2	0	20	95.2	4.08	29.38	70	
BA1	21	T21	33	95 - 110	99	46	73.8	26.12.2007	10.03.2008	0	26	4	3	9.1	4.1	28.4	66.6	
MAH7	22	T22	26	43 - 46		42.2	71.0	26.12.2007	10.03.2008	1	4	2	19	73.1	4.04	28.02	63	
MAH8	23	T23	37	90 - 91	91	45	71.0	26.12.2007	10.03.2008	1	2	0	32	86.5	4.04	28.06	63	
CB1	24	T24	29	95 - 100	97	45	74.8	26.12.2007	10.03.2008	0	2	0	26	89.7	4.04	29.18	73	
BH4	25	T25	46	80 - 95	87	44.2	72.2	26.12.2007	12/01/2008	0	2	4	36	78.3	4.2	29.04	67	
RK6	26	T26	36	100 - 100	100	48	70.0	26.12.2007	10.03.2008	0	2	1	33	91.7	4.06	28.92	70	
RK7	27	T27	11	90 - 100	95	44.4	74.0	26.12.2007	16.03.2008	0	2	0	9	81.8	4.14	27.74	60	
MH2	28	T28	10	90 - 95	92	44.6	73.6	26.12.2007	13.03.2008	0	1	0	9	90.0	4	27.94	67	
B2	29	T29	11	85 - 95	90	44.4	72.6	26.12.2007	16.03.2008	0	1	0	10	90.9	4.04	28.18	62	
RK3	30	T30	17	100 - 110	104	47.6	76.4	26.12.2007	06.03.2008	0	6	2	9	52.9	4.1	29.4	58	
RK4	31	T31	43	100 - 100	100	46.2	74.4	26.12.2007	07.03.2008	3	2	1	37	86.0	4.06	29.24	75	
MH1	32	T32	42	100 - 110	104	46.4	75.5	26.12.2007	07.03.2009	0	6	3	33	78.6	4.04	29.6	75	
SM1	33	T33	31	100 - 105	104	44.8	78.8	26.12.2007	15.03.2008	0	5	4	22	71.0	4.16	28.54	73	
ABI	34	T34	42	75 - 90	81	44.6	70.2	26.12.2007	28.01.2008	0	3	15	17	40.5	3.92	26.72	50	
CH6	35	T35	35	95 - 95	95	44.2	74.2	26.12.2007	14.03.2008	1	1	0	33	94.3	4.02	28.32	62	
A1	36	T36	39	80 - 85	83	43.2	72.0	26.12.2007	12.03.2008	6	0	0	33	84.6	4	28.1	56	
A2	37	T37	33	95 - 100	96	45.4	70.8	26.12.2007	26.02.2008	3	2	1	27	81.8	4.04	28.2	62	
T-10	38	T38	46	85-95	89	46.2	67.4	26.12.2007	14.03.2008	5	1	0	40	87.0	4	28	62	
T11	39	T39	24	90 - 90	90	43	71.2	26.12.2007	17.03.2008	1	2	1	20	83.3	4.14	27.7	53	
CH5	40	T40	36	102 - 102	102	45.2	77.6	26.12.2007	13.03.2008	3	2	1	31	86.1	4.06	29.24	69	
T9	41	T41	32	100 - 100	100	45.4	74.8	26.12.2007	15.03.2008	0	2	0	30	93.8	4.14	28.84	69	
HMK1	42	T42	25	100 - 105	100	45.8	72.8	26.12.2007	13.03.2008	0	15	4	6	24.0	4.2	29.9	75	







# Threats to Nile crocodile population

- **Habitat loss**

- Human population encroachment,
- erosion and loss of nesting areas

- **Targeted harvesting for international trade**

- Egg collection for ranching)

- **Persecution**

- Human-crocodile conflict)



## Nile crocodile Management

- ❖ 1973- Population listed in CITES Appendix I
- ❖ 1992-Proposal for Appendix II listing for ranching
- ❖ Current: Population in Appendix II for purposes of ranching in accordance with Res. Conf. 11.16



# Nile Crocodile Management Plan

- maintaining or increasing the species' overall numbers (protection);
- Producing a sustainable harvest (utilization);  
(*Based on 0.5 total adults x 40 x 10% formula*)
- Regulating their numbers where appropriate (control);
- Managing the crocodiles where appropriate for the benefit of local communities (community benefit).





**Wildlife Act CAP 376:** Nile crocodiles from the wild may be hunted or otherwise utilized under a license issued by the Wildlife Authority.

**Policy :** Crocodiles are conserved and encouraged where they do not conflict with legitimate human interests.

Conservation may include utilization that provides benefits to local communities.

**Challenge:** With wide spread population of crocodiles, and expanding population of humans, there are an increasing cases of human- crocodile conflicts.



## Aims to encourage:

- The management of crocodile populations on a scientific basis through PAC and ranching;
- The protection of crocodiles within the wild;
- The controlled utilization of crocodiles on ranches in accordance with CITES Res.Conf. 11.16

All export of products to be in accordance with CITES and the Wildlife Conservation Act.



- Eggs
- Under special authority, rogue Crocodiles as a measure to reduce crocodile-Human conflict



# Eggs harvested for ranching -2002-2007

Year	Egg collection Quota	No. of eggs collected	Area of collection	No of Ranches
2002-3	24,000	14,603	Lower Tana	2
2003-4	28,000	16,592	Lower Tana	3
2004-5	29,000	14,119	Lower Tana	3
2005-6	49,000	21,685	Lower Tana	2
2006-7	40,000	18,001	Lower Tana	2
2007-8	50,000	32,000	Lower tana &L.Turkana	2





Wildlife Authority sets minimum standards and code of practice for all aspects of crocodile production to be observed by the ranchers.

Quotas for egg collection and areas for collection are scientifically determined at the start of each season.

Authority for ranching carry the following terms and conditions:

- a) Locality of egg collection is specified on a map;
- b) Period of collection is specified;
- c) Number and type of specimens specified, with numbers allocated limited by farm capacity;



- d) The status of each specimen (clutch of eggs and hatchlings) are recorded in the ranchers/trapper's register and returns filed with Wildlife Authority.
  - e) Ranchers must report to the appropriate KWS Officer of the area before collection;
  - f) A bi-annual summary of the success of harvesting and ranching operations must be submitted by the rancher to the Wildlife Authority
- bi-annual inspections of all ranch operations is conducted by the Wildlife Authorities during the closed season (May and July) and during open season (December and January). Additional inspections may also be carried out anytime considered appropriate



# International Trade volumes –Skin Exports

www.kws.go.ke

(2001-2007)-Legal Trade using CITES Permits

Year	Quantities	Type/part	Importing country
2001	4,650	Belly skin	Singapore,Italy,France
2002	2,462	Belly skin	Singapore, France
2003	2,437	Belly skin	Singapore,Germany
2004	3,050	Belly skin	Singapore, Germany
2005	10,000	Belly skin	Singapore,Germany
2006	7,000	Belly skin	Singapore
2007	10,645	Belly skin	Singapore



Conditions tied to harvesting crocodile resources for ranching

- feasibility study to the Wildlife Authority

Prepared detailed project proposal with information on:

- a) locality;
- b) water supply;
- c) food supply;
- d) financial resources;
- e) expertise;
- f) Markets for meat & skin
- g) ranch plans.
- h) Environmental Impact Assessment (NEMA)



- Use of Problematic/Rogue crocodiles as breeding stock as an innovative means of control as opposed to elimination for managing human –crocodile conflicts
- Opening up more egg collection areas in the various species distribution range to reduce collection pressure in the traditionally known egg collection zones
- Regular rapid population assessments for purposes of monitoring change in the species dynamics





- Trade in ranchered specimens of Nile crocodile should be encouraged as incentives for in-situ conservation of the species
- Trade in Nile crocodile specimens should be limited to skins for exports and meat for local markets under controlled licensing system
- Use of universal identification tags



**THANK  
YOU**

