The Status of Ranching and trade in the Nile Crocodile (*Crocodylus niloticus*) in Kenya, a Report of Kenya to the CITES Secretariat in accordance with Res. Conf. 11.16

May 31, 2006

Introduction

In accordance with CITES Resolution Conf. 11.16 on *ranching and trade in ranched specimens of species transferred from Appendix I to Appendix II,* each Party that has made successful proposal to transfer a population of a species in Appendix I to Appendix II for ranching purposes should submit to the CITES Secretariat annual reports on all relevant aspects of each approved ranching operation to include the following:

a) Status of the wild population of the species concerned
b) Number of specimens(eggs, young or adults) taken annually from the wild
c) An estimate percentage of the production of the wild population that is taken for the ranching operation
d) Number of animals released back to the wild and their survival rates estimated on the basis of survey and tagging program if any
e) Mortality rates in captivity and causes of such mortality
f) Production sales and exports of the products and
g) Conservation programs and scientific experiments carried out in relation to the ranching operation or the wild population concerned

Kenya did make a successful proposal to transfer its population of Nile crocodile (*Crocodylus niloticus*) from Appendix I to Appendix II for ranching purpose at the Eighth Meeting of the Conference of the Parties in 1992. This report presents the status of the crocodile ranching operations in Kenya based on information generated from regular returns and routine inspections of the operations.

The information presented in this report is an analysis of the returns of the ranching operations and data collected through physical inspections of the same by a team from the CITES Management and Scientific Authorities. This team drew representation from the offices of licensing, Biodiversity Conventions and area wardens of Kenya Wildlife Service, which is the Management Authority and the Herpetology department of the National Museums of Kenya, which is the Scientific Authority. Valuable information was received through the Crocodile Producers Association of Kenya (CPAK) and directly from individual ranchers/producers.

a) The status of the wild population of Nile Crocodiles (*Crocodylus niloticus*)

Several sub-populations of Nile crocodile exist in Kenya. Generally all the fresh water systems around the country have crocodiles. Some of the major ones include Lake Turkana, Lake Baringo, Lake Victoria, Mara River, Ewaso Nyiro River, Tana River and Athi/Galana/Sabaki River.These populations are considered healthy and are inferred to be increasing in numbers based on reports from the communities in these areas.

Several crocodile population surveys and assessments have been done in Kenya however only populations of the lower reaches of Tana River have been significantly studied. The ranching operations have had no negative effects on the wild populations. The areas of egg collections are zoned to allow for appropriate levels of protection and utilization. The egg collection is closely monitored through use of collection permits and filing of returns. The annual egg collection is used to monitor the wild crocodile populations and identify trend and problem areas.

There is a planned spotlight survey of the populations in the upper reaches of Tana River mainly the Seven Forks Dams in June 2006. During the intended survey, more potential areas for egg collection will be identified.

Crocodile ranches and farms in Kenya (2006)

S No.	Ranch/farm Name	Location	Ranching/Captive breeding
1	Nile Crocodiles	Mombasa	R
2	Kenya Crocodile Farm (Mamba Village)	Mombasa	CB
3	Baobab Crocodile Farms[1]	Mombasa	R,CB
4	Larfarge Ecosystem[2]	Mombasa	R, CB
5	MarkEast Brook Crocodile Farm	Malindi	CB
6	Galaxy Crocodile Farm	Sagana	R, CB

[1] Stock for this farm was obtained from the former Baobab Farm Ltd. now relocated to a new site.
[2] This is the new name for the former Baobab Farm Ltd. with a shift from commercial operation to eco-tourism.

Two other crocodile farms have since closed down and stopped operation. These include Three N Farm and Kanthenge. Both were situated in Embu.

The 1990 Kenya Nile crocodile management plan provides for a code of ranching practice and guidelines. There is currently a strong focus by the MA towards ensuring there is improved compliance and enforcement of the code of practice and production standards. The following procedures are being required of all potential and registered operations:

a) The potential rancher submits a short feasibility study with a management plan of proposed ranching operation to the MA.
b) Upon acceptance/approval by the MA, the applicant submits a detailed project proposal detailing the following:
   - Location of the proposed ranching operation
   - Water supply
   - Food supply – evidence of secure food supply to feed a stated and projected number of crocodiles and a detailed plan of the operation.
   - Financial capital – the applicant will have to show proof of sufficient financial resources to cover at least four years of operation without expected income from the ranching operations.
   - Expertise on crocodile handling and husbandry
   - Ranch/Farm business plan with projected expansion and production
   - Full Environmental Impact Assessment Report
c) The MA reviews and responds to the feasibility studies and the completed project proposals upon which a competent team from the MA and the SA does physical inspection of the facilities
d) A letter of authority to ranch/farm is issued and can be revoked on failing to maintain standards required. The letter of authority stipulates conditions and standards to be met which include:-
   - Procedures, formats and frequency of submitting farm returns
   - Standards of the facilities

b) Crocodile stocks on farms (2005/2006)

	Farm/Ranch Name						
Age Class/category	Nile Crocodiles	Kenya Crocodile (Mamba Village)	Baobab Croc. Farms	MarkEast Brook Crocodile Farm	Larfarge Ecosystems	Galaxy Crocodile Ltd.	Totals
Less 1 year	7,835	2,777	3,229	194	-	823	14,858
I yr. 9 months	5,110	1,881		165	-	-	7,156
2 yr. 9 months	4,026	-	-	330	-	-	4,356
Mixed ages	311	1,204	1,335	34	189	-	3,073
On treatment	490	-	-	-	-	-	490
Breeders	-	238	94	40	28	-	400
Totals	17, 772	6,100	4,658	763	217	823	30,333

c) Egg collection Quotas allocated and numbers taken from the wild from 2002/2003 to 2005/2006 collection seasons

Name of Farm	**Collection locality**	**2002-3 Quotas allocated**	**Eggs collected**	**2003-4 Quotas allocated**	**Eggs collected**	**2004-5 quotas allocated**	**Eggs Collected**	**2005-6 Quotas allocated**	**Eggs collected**
Nile Crocodiles Ltd	Lower Tana	12,000	8,360	16,000	10,300	20,000	14,119	25,000	19,589
Galaxy Crocodile Farm**	Lower Tana	-	-	-	-	-	-	15,000	2, 096
Baobab Crocodile Frams	Lower Tana	12,000	6,243	12,000	6,292	5,000	-	5,000	-
Kenya Crocodiles	Lower Tana	-	-	-	-	4,000	-	4,000	-
Total Quota allocated /eggs collected		**24,000**	**14,603**	**28,000**	**16,592**	**29,000**	**14,119**	**49,000**	**21,685**

The lower Tana River is a long stretch divided into three- (3) distinct collection zones namely Mbalambala-Garissa, Baomo-Kipini and Garissa -Wenje and the community egg collection programmes do not overlap.

** Farm was established in late 2005.

d) Estimate of the percentage of production of the wild population that is taken from the wild

The following table summarizes the egg hatchability success for the various farms during the 2005/2006-egg collection season.

Name of Farm	Eggs collected from farm	Eggs collected from wild	Hatchlings realized	% Success hatching rate
Nile Crocodiles Ltd.		19,589	12,303	62.81
Galaxy Crocodile Farm		2, 096	823	39.27
Lafarge Ecosystem	1124		449	39.95
Baobab Crocodile Farms	503		287	57.06
Kenya Crocodile Farm	4979		3169	63.65
MarkEast Brook Crocodile Farm	366		183	50.00
Totals	6972	21685	17214	
Average %success on farm				52.67
Average %success from Wild				51.04
Overall Average %success				60.01

Lack of or inadequate experience in egg handling by newly recruited community egg collectors contributed to low levels of egg hatchability for eggs collected from the wild. Galaxy Crocodile Farm, which recorded the lowest hatchability success, suffered from this problem and also the fact that this was their first operation in the farm. Some of the eggs, however, were not fertile (Dan Haller, Manager Nile Crocodiles, Pers. Comm.).

e) The mortality rate in captivity and causes of such mortality

Loss is more common at the egg collection and hatchling stage. Baby crocodiles (i.e. hatchlings) and sometimes-older are susceptible to skin infections. Such cases were successfully reversed in the treatment ponds.

f) Production, sales and exports of products

The MA is responsible for issuance of all permits in accordance with the provisions of the Wildlife Act CAP 376 of Kenya. Hunting and dealership in wildlife products have been outlawed in Kenya by an act of parliament since 1977 and 1978 respectively. However, Section 67 of the Wildlife Act allows the Minister in charge of wildlife to make regulations for the better management of wildlife farming.

Crocodiles are gazetted as prohibited exports unless authorized by the Minister in charge of wildlife. Exports of crocodiles and their products are therefore subject to approval by the minister responsible for wildlife. The MA reports annually numbers of export permits issued and quantities of products to the CITES secretariat. Producers make requests to the MA for tags annually and the MA assigns the tag numbers and advises the Secretariat. The Secretariat links up the tag supplier with the producer for the tag supplies and payments. The table below shows crocodile skin exports authorized by Kenya MA for the year 2001- 2005. Data on exports for the period 2001-2003 as recorded in the ranching review report as sourced from UNEP-WCMC has also been included. Discrepancies in the data could be resolved with further analysis of data posted at UNEP-WCMC.

Export of Crocodile skins from Kenya 2001-2005

Farm/Ranch	2001	2002	2003	2004	2005	Totals
Kenya Crocodiles (Mamba village)	1,500	700	-	-	2,500	4,700
Nile Crocodiles	1,650	1050	1,050	1,200	4,700	9,650
Baobab Crocodile Farms (Ex-Baobab Ltd.)	1,500	650	1,300	1,700	2700	7,850
MarkeastBrook Croc. Farm	-	62	87	150	150	449
Totals as per permits	4,650	2,462	2,437	3,050	10, 050	22,649
Totals as per review	4,600	3,211	2,243	-	-	

Exports of Crocodile products other than Skins from Kenya 2001-2005

Year	Product exported	Quantities in permits issued	Farm Name exporting
2001	-		
2002	-		
	-		
2003	Live hatchlings	3,300	Kenya Crocodiles(Mamba village)
	Heads	144	Kenya Crocodiles (Mamba Village
2004	-		
2005			
Total Animals		3,444	

g) Conservation programs and scientific experiments carried out in relation to the ranching operation or the wild population concerned

Some observations are being made at Nile Crocodiles Farm to understand the variation in growth rates. This is to explore the effects of using different feeding regimes and stocking densities. Preliminary data indicate that individual crocodiles of the same age achieve varied measures of length and weight over the same period.

Under the community egg collection programme, the best methods of transporting the eggs is being investigated in order to achieve optimal hatchability.

h) Conservation benefits to the wild population

No cases of illegal trade in crocodiles and their products have been reported in the recent past. Egg collection from the wild by registered operations requires a separate collection permit and returns are filed with the Management Authority immediately at the close of the collection season which is usually between October and March.

Egg collection involves local communities in the designated zones of collection currently in the lower reaches of Tana River. The MA recommends that the ranchers identify and train community members on methods of egg collection and handling for maximum production and minimal wastage/loss. Community members are paid on the number and viability upon hatching of collected eggs.

The integration of local communities in the egg collection programme has proved to be of positive value to conservation of wild populations.

In some instances, the ranchers have introduced extra incentives in the form of bonus payments dependable on percentage hatchability. Overall, community crocodile egg collection programme has helped to turn the human crocodile conflict problem into a sustainable socio-ecological and economic opportunity, which supports conservation of the resource.

In 2005 and 2006, training seminars for communities in the egg collection zones were held. These seminars brought together with local communities, crocodile producers and Tana Delta Environmental Management Forum (TADEMFO) and emphasized on conserving crocodiles and sensitizing people on the sustainable management of the resource incorporating the ranching operations. Local community members have been trained on egg collection methods

There has been no detailed recording and reporting on incubation and hatching to include hatchability rate per clutch. However, with the application of the currently developed code of practice, these details will be collected and analyzed to assess the success of the operations. The same will be presented in the next regular reports.

Return/Release to the wild program
No release to the wild program is currently being implemented as the current areas of egg collection already experience high population densities resulting in cases of crocodile –human conflict.

The release to the wild program is unpopular with the local communities in the conflict areas. To reduce human-crocodile conflicts there have been proposals to reintroduce a program to capture rogue crocodiles to provide breeding stocks to the registered operations. In return the operation will support community development projects in the source of breeders as further incentives for in-situ conservation of the crocodile population. These proposals are however being reviewed and discussed. The capture of adult rogue crocodiles for ranching purposes in an effort to reduce conflicts is provided for in the crocodile management plan but no permit has been issued since 1997.