Analysis of Tusks from the Central African Republic

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The study of elephant tusks in the ivory trade can provide information useful in the evaluation of the status of exploited populations (Pilgram and Western, 1983; 1984). Members of a WWF/I UCN survey team in the Central African Republic (CAR) were recently given the opportunity to examine tusks which had been recovered from a poaching camp in the Gounda-St. Floris National Park by government security forces. The data obtained have been analysed to obtain an indication of the pattern of elephant mortality in an area where high levels of poaching have recently been reported.

Weight, lip circumference and length were recorded for each unbroken tusk (of which there were 191). These tusks were sexed from the relationship between length and lip circumference, female tusks tending to be slimmer for any given length. Plotting length against lip circumference permits a visual separation between male and female tusks to be made (Laws, 1969). This separation is obvious for mature animals, less so for the relatively small tusks which dominated the CAR sample. Thirteen tusks with a lip circumference exceeding 29cm were all assumed to be from male elephants.

The sample tusks had the following general features.

	Max.	Min.	Average
Length (cm)	155.0	33.0	90.1
Lip circumference (cm)	36.0	11.0	19.0
Weight (kg)	11.5	0.3	3.4

Ages for the CAR sample were calculated separately from weight and lip circumference, following the methods of Pllgram and Western (1983). Each tusk was allocated to a five-year age class, giving the following sample age distributions.

	Method of Ageing							
Age Range (yrs)	weight				Lip circumference			
	Male		Female		Male		Female	
	No.	%	No.	%	No.	%	No.	%
0- 5	8	7.3	–	–	12	10.9	–	–
5-10	46	41.7	3	3.7	58	52.7	11	13.6
10-15	40	36.4	13	16.0	23	20.9	23	28.4
15-20	8	7.3	24	29.6	7	6.4	28	34.5
20- 25	8	7.3	28	34.7	8	7.3	16	19.8
25- 30	–	–	13	16.0	2	1.8	3	3.7
Total	110	100.0	81	100.0	110	100.0	81	100.0

Pilgram and Western (1984) simulated the mortality patterns which would result from a variety of hunting techniques and intensities. The mortality pattern indicated by the CAR sample (based upon tusk weight) and the two simulations to which it appears most similar are shown in Figure 1. These simulations represent selective hunting, i.e., a preference for large tusks and therefore males among animals of similar age. The shape of the CAR frequency distribution curve corresponds reasonably well to the two selective hunting re-

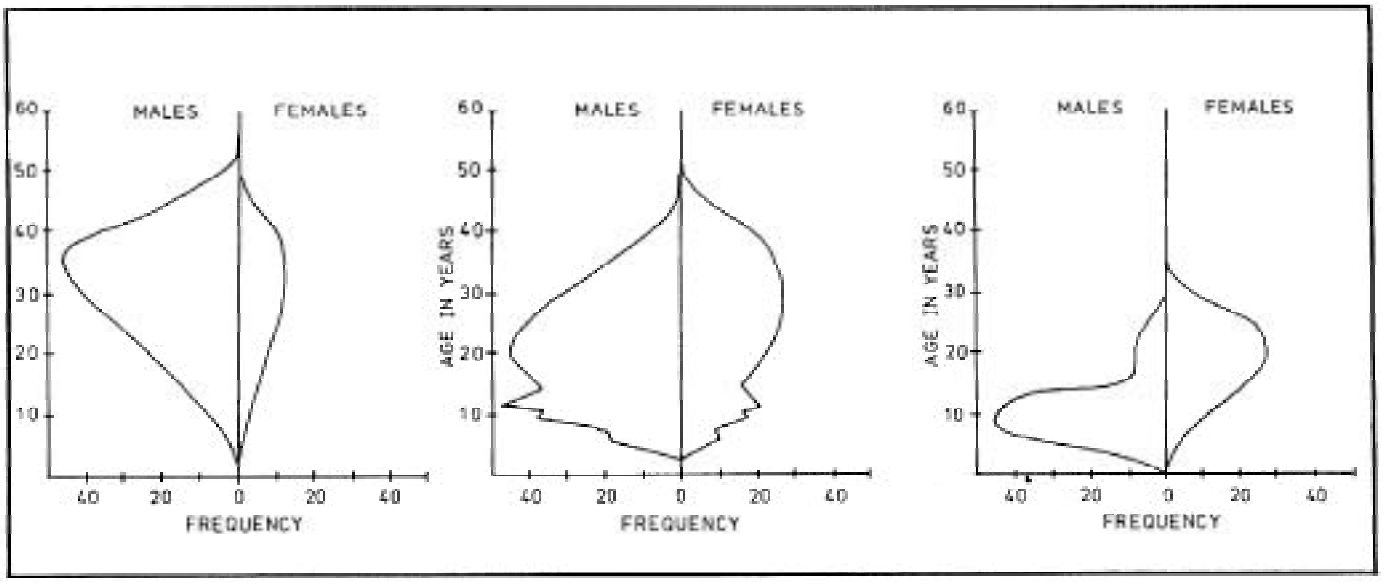

Figure 1. Mortality patterns represented by tusks. Left to right: selective hunting from a mature population; selective hunting from a young population (Pilgram and Western, 1984); empirical results for the Central African Republic sample. The frequencies are adjusted to be on similar scales.

gimes. The peaks occur at younger ages, however, suggesting selective hunting of a very young population. No tusks belong to an animal over the age of 35 and a large proportion of animals, particularly males, appear to have died before reaching sexual maturity, it seems highly unlikely that the mortality pattern indicated by these results would be sustainable for very long.

The method used to age this sample of tusks was developed from an examination of ivory collected in East Africa. The extent of variations in the relationship between tusk dimensions and age in different elephant populations have not been quantified. It is conceivable that elephants found in the CAR may be consistently younger or older for given tusk dimensions than their East African relatives, possibly older if they are forest elephants (**Africana loxodonta cyclotis**). Remarkably different parameters would be required, however, in order to suggest that anything other than very young elephants have been sampled in this case.

The WWF/IUCN aerial survey found a massive decline of elephants in this region and evidence of high recent mortality (Douglas-Hamilton **et al.,** 1985), results which are consistent with the mortality pattern derived from the tusk sample. In the absence of census data, the analysis of tusks in the ivory trade is clearly a powerful tool available to those concerned with elephant conservation.

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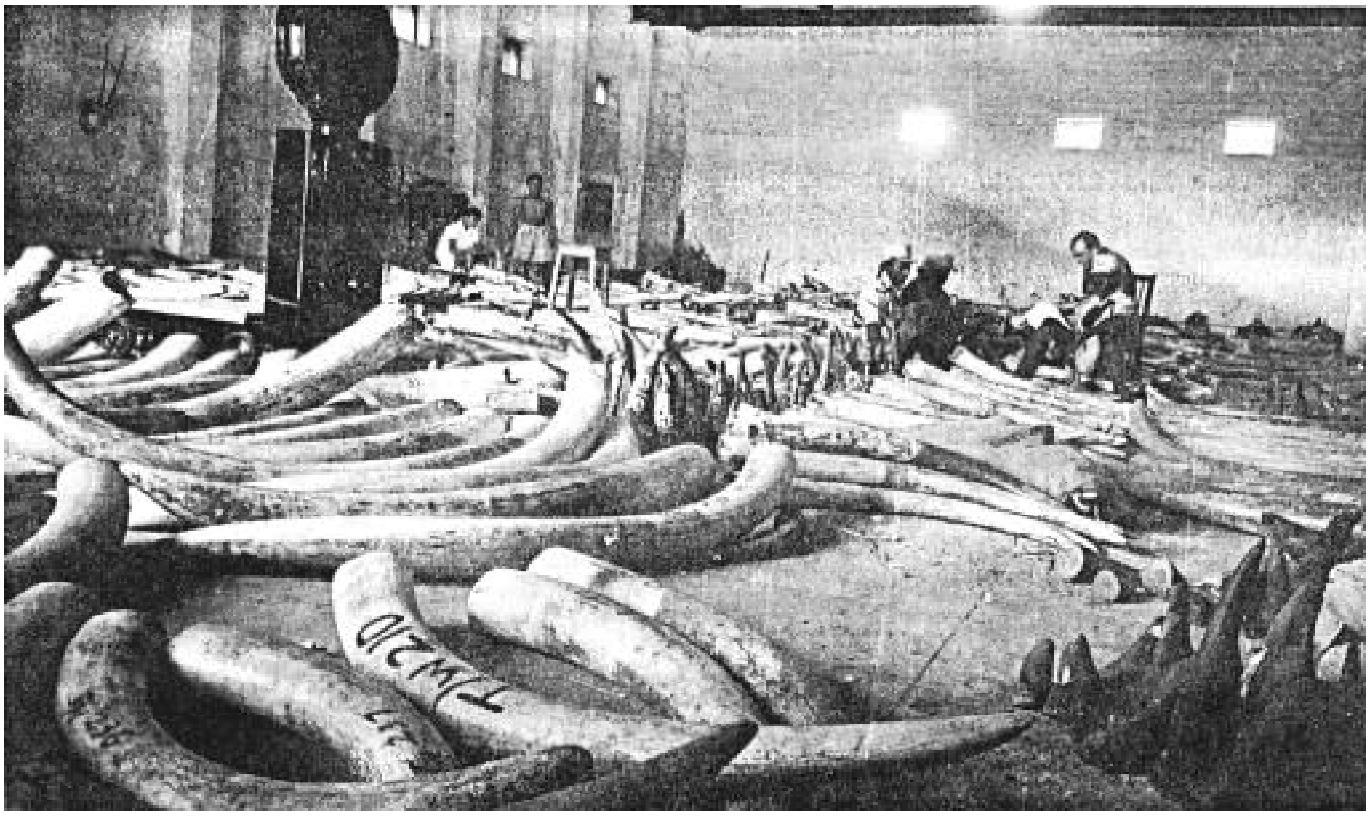

The Ivory Room, Mombasa, in past days. P.R.O. Bally/WWF.

GARAMBA RHINO

The status of northern white rhino in Garamba National Park, Zaire, appears to have remained stable during 1985. A total of about 13 individuals were seen regularly, of which there were 4 adult males, 4-5 adult females, 3 sub-adults and 2 infants. Despite the two births during the year, the total number remained the same as in 1984, with a couple of adults that were previously thought to be present either disappearing or being confused with the others. There was no evidence of recent rhino poaching within the park.

AERSG ANNUAL MEETING, 1986

Plans for the 1986 annual meeting of the Group are that it will be held from 14-18 July, 1986, probably in the Luangwa Valley, Zambia. Members will be informed of final arrangements as soon as possible.