

See Lwezau's comment

A PRELIMINARY REPORT
ON THE
PRODUCTION AND DISTRIBUTION OF IVORY
IN TANZANIA 1971 - 1977

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of Tanzania, by the IUCN Elephant Survey
and Conservation Programme.



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1. INTRODUCTION

The status of elephant populations is greatly affected by the supply and demand of elephant ivory. In recent years, the International ivory trade has expanded. Today, the ivory of the African elephant provides the basis of major industries in China, Japan, and Hong Kong. Tanzania is one of the chief ivory producing countries in Africa. Little is known of the machinations of the international ivory market. However, it is in Africa itself that the impact of the ivory trade on elephant populations is felt. It was with this in mind that we approached the Game Division of Tanzania, and requested permission to mount a preliminary study of ivory production and distribution in Tanzania. We met with the full co-operation of the Game Division, who opened their files to us.

This initial report is based on a six week study of Game Division Records, held in the Ivory Room in Dar es Salaam, and entries in the East African Customs and Excise Records relating to ivory exports from Tanzania (see Appendix). Game Division Records furnished information on four major ivory sources:

- (a) ivory obtained from elephants shot on control;
- (b) ivory confiscated from poachers;
- (c) found ivory; and
- (d) ivory obtained by licensed hunters

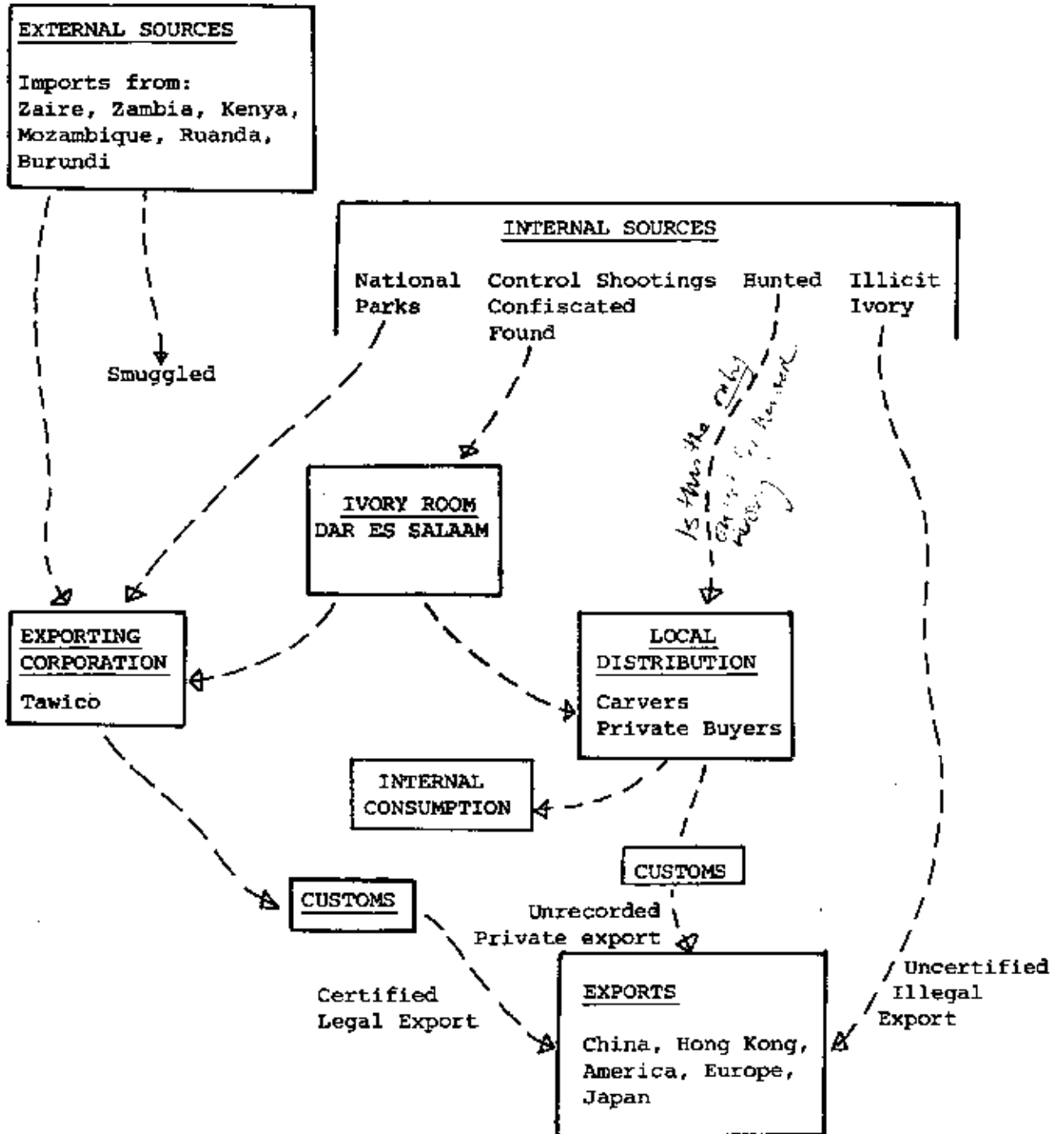
As such this report represents only a partial survey of the ivory trade in Tanzania. We have not dealt with ivory produced within the National Parks; ivory imported and re-exported by Tanzania; or poached and smuggled ivory. Thus the conclusions we are able to reach in this initial survey are limited - although indicative of further areas of research if a fuller understanding of the Tanzanian ivory trade is to be obtained. The flow diagram on page three illustrates the movements of ivory in Tanzania.

The aim of this study is to:

- (a) Establish levels of ivory production;
- (b) Identify major ivory producing areas;
- (c) Indicate major methods of ivory appropriation;
- (d) Determine uses and destinations of Tanzanian ivory.

Initially, however, we will briefly outline the current trends and status of elephant populations in Tanzania.

FLOW DIAGRAM OF IVORY MOVEMENTS IN TANZANIA



2. THE STATUS OF ELEPHANTS IN TANZANIA: A BRIEF OUTLINE

Tanzania possesses one of the healthiest elephant populations in Africa. Current minimum estimates of the total population lie in the region of 300,000 - the greater proportion of which range in the South East of the country, in and around the Selous Game Reserve. S.E. Tanzania holds around 150,000 elephants in a stable or increasing population (1).

The highest density population is found in Lake Manyara National Park. At over 5/km² Manyara possesses the highest recorded density in Africa (2) - Both Manyara and Ruaha National Parks have experienced elephant induced environmental change (3).

Until recently large elephant populations were found in the Northern part of the Serengeti, Tarangire and Mkomazi. However, recent surveys (4) suggest that poaching in these areas has reduced numbers. Poaching for elephant ivory seems to be a feature in populations in the north of the country, along the border with Kenya. There appears to be some substance to claims that large quantities of poached ivory leave Tanzania via Kenya.

In general, however, the elephants of Tanzania, are thriving. Their range has been subject to reduction in some areas, such as Northern Tarangire and E. Ruaha, but since the introduction of Ujamaa settlement schemes human expansion into traditional wildlife habitats has been curtailed. In some places, for example on the Selous boundaries, the range available to elephants has actually increased.

(1) IUCN sample Count 1976

(2) Douglas-Hamilton, On the Ecology and Behaviour of the African Elephant
(Thesis, 1972)

(3) IUCN sample count 1976

(4) IUCN sample counts 1976, 1977 and 1978 respectively

Tanzania : Elephant Distribution

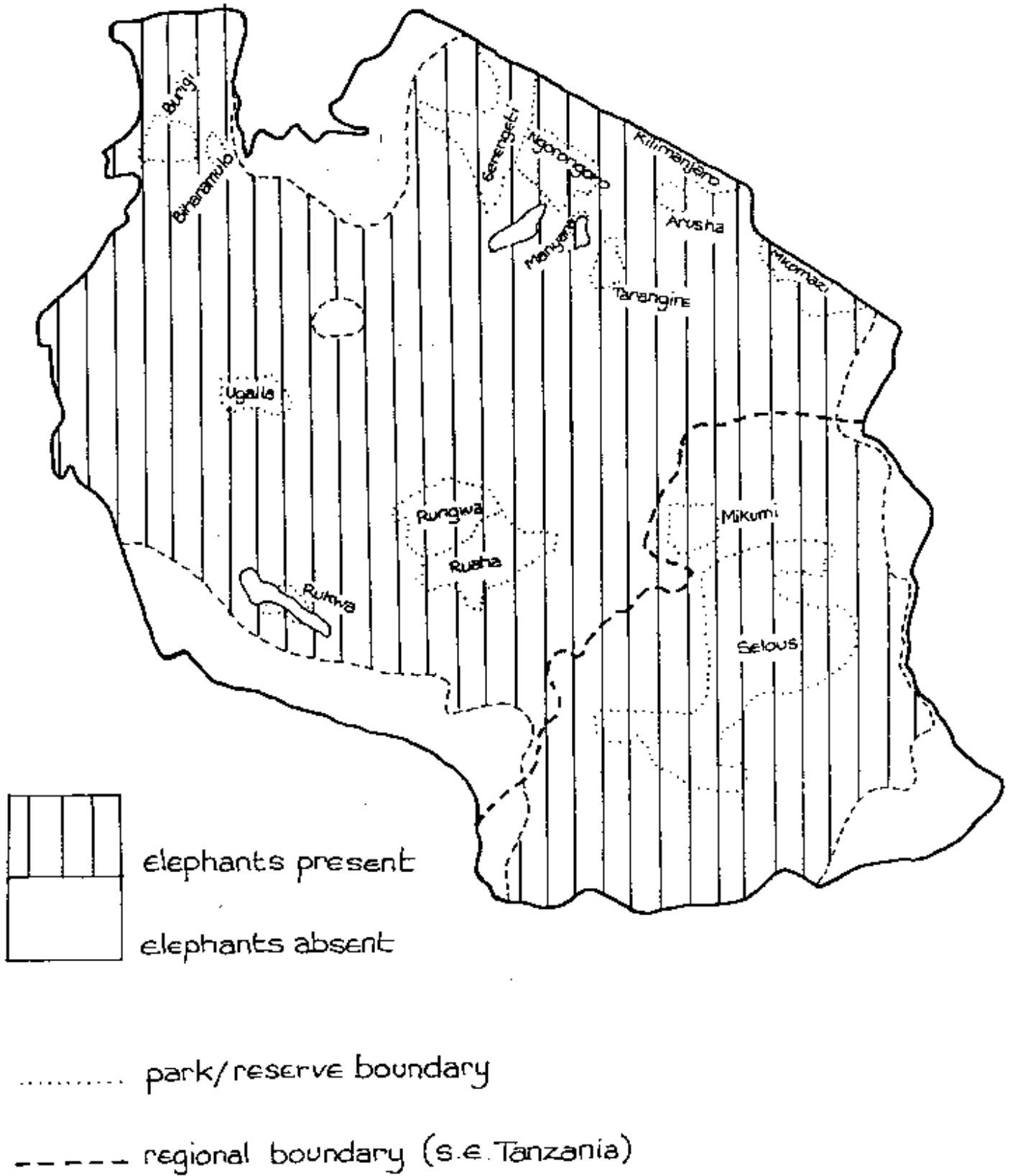
REGION	AREA km ²	No/Elephants	Density/km ²	Source
Selous area	73,408	115,640 10,426	1.58	IUCN sample count 1976
Kilombero Valley	7,648	3,000	0.39	Game Division sample count 1976
Serengeti	18,400	2,718	0.15	IUCN sample count 1976
Lake Manyara National Park	80	450	5.6	IUCN Total count 1976
Tarangire	3,528	1,357	0.38	IUCN sample count 1977
Marang Forest	212	500	2.36	IUCN estimate from assumed density 1978
Yaïda Chini	3,975	668	0.17	Ecosystems sample count 1977
Ngorongoro Forest*	(150)	(100)	0.67	IUCN estimate from assumed density 1978
Arusha N.P.*	(100)	(100)	1.00	Vesey-Fitzgerald 1967
Kilimanjaro Forest	802	1,197	0.67	Afolayan 1967
Mkomezi	3,800	665	0.17	IUCN sample count 1978
Rukwa	31,080	15,337	0.493	Ecosystems sample count 1978
Uwanda	2,200	1,156	0.525	Ecosystems sample count 1978
Rungwa/Kizigo	14,800	14,300	0.97	IUCN sample count 1976
Ruaha	16,300	26,734	1.64	IUCN sample count 1976
Totals Censused Areas	176,483 km ²	183,922	1.04	IUCN Estimate 1978
Estimates for Non-Censused Areas	645,755 km ²	129,151	0.2**	IUCN Estimate 1978
TOTAL Elephant Range	822,238	313,073	0.38	IUCN Estimate 1978

* Very Approximate Estimates

** Density Estimate for non-protected areas

NB The censused areas generally cover a wider area than the National Park/Reserve, name used to designate it.

Tanzania: elephant range



3. LEVELS OF IVORY PRODUCTION

Although Tanzanian files on the ivory trade date back to the early part of this century, the limited duration of this study permitted analysis of only the most recent records (1). These show that since the early 'seventies the Ivory Room in Dar es Salaam has received between 6,500 and 7,500 tusks annually, which amounts to 21-34 tons of ivory per year.

Conversion of the number of tusks into the numbers of elephant producing them is not simply a matter of dividing the former figure by two. In any elephant population, there is always a proportion of elephant with only one tusk, and some with no tusks at all. Using data presented by Rodgers et. al. (2) we have adopted a standard of 1.88 tusks per elephant.

Table One below summarizes the amount of ivory received by the Ivory Room between 1971 and 1977, related to approximate numbers of elephant involved in producing it. As indicated in the introduction, this table relates to only three main sources of ivory: ivory resulting from control shootings, found ivory, and confiscated ivory (3).

TABLE ONE: Ivory received by the Ivory Room (1971-1977)

Year	No. of Pieces	Mean Tusk Wt. Kgs.	St. Dev. Wt. Kgs.	Total Wt. Tons <i>(1000/25)</i>	Range <i>kgs</i>	Approx. No. Elephants
1971	3967	5.35	4.27	21.240	.05-39.5	2110
1972	7423	5.11	3.67	37.968	.20-55.5	3948
1973	6692	4.69	5.67	31.408	.20-46.7	3560
1974	6810	4.48	3.37	30.511	.10-88.0*	3622
1975	6491	4.87	3.89	31.612	.10-68.0	3453
1976	7399	4.60	4.14	34.023	.5-61.2	3936
1977	5095	4.75	3.84	24.215	.05-41.0	2710 ^v

* Two largest tusks on record in Tanzania, 87.5 & 88.0 kgs.

(Source: Ivory and Trophies Registers, 1971-77)

- (1) Records consulted cover the period July 1971 to September 1977.
- (2) Rodgers et. al., "Elephant Control and Legal Ivory Exploitation in Tanganyika from 1920-1976", p.10, unpublished.
- (3) Hunted ivory is registered at a local centre, see page 8, and then either retained by the hunter or passes onto the local market. Hunting elephant was banned in 1973. Recently the ban has been lifted.

4. METHODS OF IVORY APPROPRIATION

Control shooting of elephants in protection of human life and crops has been a common feature in Tanzania in the twentieth century. During the Colonial Era it became largely a task of the central administration. Today, ivory obtained from control shootings by the Game Division represents by far the greater proportion of ivory received by the Ivory Room in Dar es Salaam.

Table Two below shows the ratios between the methods of ivory appropriation which are the subject of this report. It is based on a limited sample of the years 1967 and 1968 (1), but there is little reason to believe that these ratios have significantly altered, except for the licensed hunting of elephants which was banned between the years 1963-1978.

TABLE TWO: Sources of ivory (numbers of elephants killed)

YEAR	SHOT BY GAME SCOUT	SHOT ON LICENCE	FOUND	CONFISCATED FROM POACHERS	TOTAL
1967	3,506	851	434	66	4,857
1968	3,580	845	393	44	4,862
	7,086	1,696	827	110	9,719
Percentage	73%	17%	9%	1%	100%

(Source: Yearly Summaries of the Quarterly Reviews)

Rodgers et. al. (2) show that between the 1920s and 1970s the number of elephants shot on control increased from an average of 532 per annum in the 1920s to 3,525 in 1971.

(1) See data sources in Appendix

(2) Rodger et. al, op.cit, Table Three

5. THE REGIONAL DISTRIBUTION OF IVORY

Ivory collecting centers exist throughout, Tanzania (see map page 10) All ivory obtained from control shooting, confiscated, found or hunted is registered and weighed at one of the one of the centres.

We have obtained detailed data on ivory received by each centre which has yet to be processed. A later report will be concerned with a breakdown of regional sources of ivory related to available census data on local elephant populations.

However, even a cursory glance at the data reveals S.E. Tanzania as the major ivory producing region of the country. Recalling that an average of 78% of the ivory received by the Ivory Room is derived from control shootings, Table three below shows that an average of 85% of elephants shot on control range in the south east of Tanzania. This analysis by the Game Division does not go further than 1968.

TABLE THREE: Elephants shot on control 1963-1968

YEAR	TOTAL NO. SHOT ON CONTROL	NO. SHOT IN S.E. TANZANIA	PERCENTAGE OF TOTAL
1963	3,247	2,748	85%
1964	2,993	2,462	82%
1965	3,105	2,666	86%
1966	3,430	2,927	85%
1967	3,506	2,995	85%
1968	3,580	3,028	85%
TOTAL	19,861	16,826	85%

Source: Game Department Summaries of Control Shootings, with breakdown for South East Tanzania extracted from Rodgers et al opicit.

In total, (i.e. including confiscated and found as well as control shot ivory) South East Tanzania supplied approximately 60% of all ivory received by the Ivory Room between 1971 and 1977. Table four (page 11.) presents this breakdown.

TABLE FOUR: Ivory received by the Ivory Room from South East Tanzania 1971 to 1977					
YEAR	PIECES	MEAN WEIGHT OF TUSK KGS	TOTAL WEIGHT TONS	APPROX. NO. ELEPHANTS	PROPORTION BY WEIGHT OF TOTAL RECEIVED BY IVORY ROOM FOR THAT PERIOD.
1971	2,425	4.25	10.956	1,290	52%
1972	5,254	4.43	23.390	2,795	62%
1973	4,758	4.49	21.362	2,530	68%
1974	3,607	4.36	15.725	1,920	52%
1975	3,480	4.80	16.698	1,850	53%
1976	5,075	4.56	23.166	2,700	68%
1977	3,142	4.63	14.532	1,670	60%
TOTAL	27,741	4.54	125.829	14,760	60%

Source: Ivory and Trophies Register, 1971-1977

Thus South East Tanzania may be regarded as a substantial revenue source for Government of Tanzania. In 1973 alone, adopting the current average export value of ivory at that time of Shs 300/kg. South East Tanzania could have generated around Shs 6,000,000 in foreign exchange. If methods for finding ivory produced as a result of natural mortality were improved this region could prove to be even more lucrative.

6. IVORY MARKETING WITHIN TANZANIA

The Ivory Room in Dar es Salaam is the processing headquarters for all ivory that is derived from control shootings, found or confiscated outside the National Parks. It receives and documents this ivory (see Appendix) and organises sales to the exporting corporation, carving associations, or private individuals.

In 1971, ivory exports were nationalised and became the concern of the State Trading Corporation. During 1973, this function was transferred to ^{GAPET and later to TAWICO} ~~STC~~. Overall sales to exporting corporations account for 89.4% of the total sales from the Ivory Room since 1971. Carving societies have seen an increase in both size and number since 1973 accounting for only 0.14% of sales from the Ivory Room in that year, and expanding to 22% of the total sales in the first nine months of 1977. Private buyers and trophy dealers account for no more than 2.7% of all sales between 1971 and 1977.

In total, 43,379 pieces of ivory weighing 201.13 tonnes, and representing approximately 23,070 elephants, were sold by the Ivory Room between 1971 and 1977. Table Five overleaf presents the breakdown of Ivory Room sales during this period.

N.B Increase in % ivory consumed by private consumers. This was already 30% by 1977 & therefore would not appear in any export statistics, yet was elephants obtaining the ivory trade.

TABLE FIVE:

YEAR	EXPORTING CORPORATION Pieces	Weight Tons	CARVING ASSOCIATION Pieces	SALES Weight Tons
1971	1,718	7.169 (STC)		7.449
1972	6,167	36.723 (STC)		36.779
1973	5,345	22.085 (STC)	9	29.271
	830	6.742 (GAPEX)		
1974	8,927	37.599 (GAPEX)	11	37.721
1975	1,977	7.762 (GAPEX)	390	22.261
	2,202	11.957 (TAWICO)		
1976	7,017	33.320 (TAWICO)		44.005
1977	3,364	16.510 (TAWICO)		23.595
TOTAL	38,347	179.866	4,086	43,379
% OF TOTAL SALES	89.4%	7.9%	100	201.130
APPROX NO. OF ELEPHANTS	20,397	2,173	53	23,074

Source: Daily Registers Book 7.71-9.77

7. IVORY EXPORTS

Sales from the Ivory Room to exporting corporations account for only part of the ivory exports from Tanzania. The corporation receives substantial supplies of ivory from other sources, including the National Parks, and possibly ivory imported or smuggled into Tanzania from neighbouring countries which has received legal certification during transit. Table six overleaf compares Ivory Room sales to the exporting corporation with total ivory exports from Tanzania, and thus reveals the extent of the alternative sources which are not entered in Game Division records.

During the early 70s, the price of ivory on the international market rocketed. According to Rodgers et. al (1) the average purchase price of ivory in Dar es Salaam rose from Shs 82.7/kg in 1970 to Shs 320.8/kg in 1974. Using prices supplied by Rodgers et. al (1) Table six expresses the approximate value of total Tanzanian exports, and the approximate value of alternative supplies of ivory between 1971 and 1974. Average prices of ivory for 1975-1976 were not available.

Table six shows that between 1971 and 1974, ivory appearing in Game Division records accounted ^{for} only ~~one~~ ^{one} third of the total value of Tanzanian ivory exports. In ~~the~~ ^{the} period 1971 to 1976 a total of 551.180 tons of ivory was exported, 387.820 tons of which was derived from other sources. This difference between Ivory Room sales and total exports leads to the ~~unavoidable~~ conclusion that between 1971 and 1977 the exploitation of Tanzania's elephant resource has been far greater than ~~the~~ ^{the} inflow of ivory recorded ^{is held} in the Ivory Room ~~would~~ suggest. A collation of additional official records relating to ivory sources from Tawico and National Parks would be invaluable in determining the extent and nature of the ivory trade in Tanzania, whose structure is outlined in the flow diagram on page 3 (1)

Rodgers et. al, op.cit.

TABLE SIX;
COMPARISON OF IVORY ROOM SALES TO EXPORTING CORPORATIONS WITH TANZANIAN EXPORT STATISTICS 1971-1976

(1) YEAR	(2) IVORY ROOM SALES TO EXPORTING CORPORATION (Tons)	(3) TOTAL IVORY EXPORTS FROM TANZANIA (Tons)	(4) AVERAGE IVORY PRICE/KG (Shs)	(5) VALUE OF TOTAL EXPORT OF IVORY (Shs)	(6) DIFFERENCE BETWEEN IVORY ROOM SALES AND TOTAL EXPORT (Tons)	(7) APPROX. VALUE OF DIFFERENCE (Shs)	(8) PERCENTAGE DIFFERENCE (%)
1971	7.169	132.225	85.1	11,252,347	125.056	10,642,265	1,800%
1972	36.723	250.937	197.6	49,585,151	214.214	42,328,686	680%
1973	28.830	64.361	315.2	20,286,587	35.531	11,199,371	220%
1974	37.599	39.721	320.8	12,742,496	2.122	680,737	105%
			(Sub-Total)	93,866,581		64,851,059	
1975	19.720	26.917			7.197		136%
1976	33.320	37.020			3.700		111%
TOTAL	163.360	551.180			387.820		337%

Sources: Daily Registers Book, 1971-1976; East African Customs and Excise Records 1971-1976; Rodgers et al., op.cit.

8. CONCLUSION

Tanzania has one of the largest and healthiest elephant populations in Africa. Her record for protection of this population is excellent. However, the spiralling rise in the price of ivory on the international market has caused a pan-African upsurge in poaching and trade in illegal ivory. It is unlikely that Tanzania has escaped this - and in any event, it is always preferable to be pessimistic about such matters. Examples from other African countries show that elephant populations can suffer radical and rapid declines at the hands of poachers where sufficient care has not been taken. In spite of her excellent record, therefore, Tanzania may need to improve her control and monitoring of her ivory trade.

Our analysis of data supplied by the Game Division for the years 1971-1977 is continuing. There are indications that a decline in mean tusk weight may have occurred, which will need to be assessed at a regional level. Such a decline could be indicative of a change in the structure of elephant populations due to exploitation of older and larger tusked elephants over an extended period. We will forward the results of our analysis when they are prepared.

Our preliminary recommendations are as follows:

- (1) Monthly Summaries of the Daily Register (see Appendix) are already prepared. We would suggest that Monthly Summaries of the Ivory and Trophies Register by place and year would assist in identifying regional levels of ivory production, as well as regional fluctuations in mean tusk weight.
- (2) That summaries of the Quarterly Returns are also initiated.

- (3) That a breakdown of the origin of all ivory exports from Tanzania be made, including sales from the Ivory Room, ivory coming from the National Parks and Reserves, and imported ivory.
- (4) That the Ivory Room prepares summaries of all the records since 1964 in order to determine any changes in mean tusk weight, changes in total quantities received etc. over a longer period.
- (5) That these summaries and export breakdowns be issued as a regular report to the Game Department and National Parks, in order to assist them in determining trends in the utilisation of elephant ivory, and to plan future conservation programmes to preserve the elephant populations of Tanzania.
- (6) That Tanzania sign the Washington Convention on the International Trade in Endangered Species, to which she is a party, in order to promote International control of the illicit ivory trade.

APPENDIX

All ivory entering the Ivory Room in Dar es Salaam is registered as follows:

The Ivory and Trophies Register

- (a) Registration Number of Each Piece of Ivory
(Given at the local ivory collecting centre,
see map, page 9)
- (b) Weight in Kgs
- (c) Place of Origin

2. The Daily Register

- (a) Total number of pieces
- (b) Registration Numbers
- (c) Total Weight in Kgs
- (d) Places of Origin

3. The Quarterly Returns

- (a) Method in which ivory was obtained
- (b) Registration Number
- (c) Weight in Kgs.
- (d) Place of Origin

Sales of ivory Room are entered in the Daily Register with:

- (a) Total number of pieces
- (b) Registration Numbers
- (c) Total Weight in Kgs
- (d) Name of Buyer

The Report is based on the following Record and Sources:

- The Ivory and Trophies Register (1971-1977)
- The Daily Register (1971-1977)
- The Yearly Summaries of the Quarterly Returns (1967-1968)
- The Game Department Summaries of Control Shootings (1963-1968)
- East African Customs and Excise Records: Tanzanian Ivory Exports (1971-1976)
- A.W. Rodgers, et. al. "Elephant Control and Legal Ivory Exploitation in Tanganyika from 1920-1976"