AMENDMENTS TO APPENDICES I AND II OF THE CONVENTION

Other Proposals

A. PROPOSAL

Transfer of the populations of *Loxodonta africana* occurring in Botswana, Malawi, Namibia, Zambia and Zimbabwe from Appendix I to Appendix II.

B. PROPONENT

This proposal was submitted individually by Botswana, Malawi, Namibia and Zimbabwe.

C. SUPPORTING STATEMENT

1. Taxonomy

11. Class	Mammalia	
12. Order	Proboscidea	
13. Family	Elephantidae	
14. Species	*Loxodonta africana* (Blumenbach, 1797)	
15. Common names	English:	African elephant
	French:	éléphant d'Afrique
	Spanish:	Elefante africano
	German:	afrikanischer elephant
	Portuguese:	Elefante africano
16. Code numbers	CITES A-115.001.002.001 ISIS 5301415001002001001	

2. Biological Data

21. Distribution:

Historical: Elephant were distributed throughout southern Africa prior to the arrival of the first colonial settlers in the 17th century. From the early part of the 18th century, exploitation for ivory, expansion of settlements and protection of agricultural crops combined to reduce populations throughout the subregion*[1]*. Elephant in South Africa had largely been eliminated by the beginning of the 20th century except for a few remnant populations, the largest of which was in the north-eastern Transvaal numbering at most a few hundred animals*[2]*. Populations were similarly depleted in Zimbabwe*[3,4]*, Botswana*[5,6]*, Namibia*[7]*, Zambia*[8]* and Malawi*[9]*, and were extinct in most of their former range.

Following the introduction of protective legislation in all the above countries in the early 1900s, elephant numbers began to increase. Protected areas were established from the 1920s onwards and by 1990 each of the countries

included in this proposal had set aside a system of national parks and protected areas exceeding 10% of their total land area.

Current: The current distribution of elephant in the proposing countries is shown on Map 1 and the areas of elephant range appear below in Table 1. An important point to be noted is the significant proportion of elephant range outside state protected areas. The range available to elephant has been steadily increasing in recent years as a result of enlightened land use policies which allow rural people to manage and benefit directly from their elephant populations.

Table 1: Elephant range in proposing States

COUNTRY	Total Land Area km^2	State Land Elephant Range km^2	Other Elephant Range km^2	Total Elephant Range km^2	% of land
Botswana	585,370	19,000	81,000	100,000	17
Malawi	94,080	10,000	1,000	11,000	12
Namibia	824,292	28,000	89,000	117,000	14
Zambia	752,614	59,000	95,000	154,000	20
Zimbabwe	390,245	44,000	47,000	91,000	23
TOTALS	2,646,601	160,000	313,000	473,000	18

22. Populations

Estimates: Overall total estimates for the elephant populations in the proposing countries are given in Table 2 below. The breakdown of populations in the individual countries, including methods of deriving the estimates and confidence intervals of surveys is given in Annex 1.

Table 2: Elephant populations in the proposing States

COUNTRY	ELEPHANT POPULATION		
	Inside Protected Areas	Outside Protected Areas	**TOTAL**
Botswana	18,000	42,000	60,000
Malawi	2,000	1,000	3,000
Namibia	4,000	3,000	7,000
Zambia	27,000	10,000	37,000
Zimbabwe	58,000	10,000	68,000
TOTALS	109,000	66,000	175,000

Totals are rounded to the nearest 1 000 animals because the accuracy of the estimates does not justify more precise interpretation.

Points to draw attention to in these population figures are:

a) The total population of the region can be considered as a single population. There are no areas totally isolated from others by ecological barriers in the region yet. In places where there are very low density populations or where elephant appear absent, there are still corridors of natural habitat permitting the movement of occasional individual animals which help maintain genetic diversity throughout the region.

b) Using the Mace-Lande*[10]* criteria for threatened taxa categories none of the above national populations would be considered VULNERABLE (requirement for an Appendix-II listing), much less ENDANGERED (Appendix I-listing - "threatened with extinction").

c) Some 40% of the total population occurs outside protected areas. These subpopulations provide the essential connecting links between the main protected area populations throughout the region. In order to avoid the formation of "ecological islands" of elephant, it is desirable that they survive. The future of these elephant is closely linked to their economic value.

Trends: Elephant populations in southern Africa increase on average at a rate of about 5% per annum*[11,12,13,3,14,15]* in the absence of any management to reduce populations. Higher growth rates have been put forward*[16,6]* but these either arise from an age structure which has not yet stabilised or from deductions drawn from survey estimates which may have wide confidence intervals.

Populations in Botswana*[17]*, Namibia*[18]* and Zimbabwe*[19]* are currently being managed to limit or reduce their present levels, so that consideration of trends is irrelevant. The elephant population in Malawi is stable despite a significant increase in illegal hunting following the listing of the elephant in Appendix I of CITES in 1989*[20]*. Zambia's population also appears to have stabilised and is increasing in some areas due to a major increase in law enforcement effort*[21]* and successful community wildlife programmes*[22]*.

23. Habitat:

Most elephant populations in the region occur in marginal and fragile habitats to where they have been displaced by expanding human populations. Because humans and elephant compete for the same resources*[23]*, the increase in human populations in the last twenty years has placed and is continuing to place considerable stress on the environment (Annex 2). Craig*[24]* shows how barriers to dispersal reduce the overall carrying capacity for elephant populations in protected areas and lead to local extinctions.

The impact of elephant on habitats in the southern African region has been well documented*[25-34]* and the relationships between elephant densities and woodland persistence are sufficiently defined*[35]* to be able to predict that wherever elephant densities exceed 1/km^2 almost the entire cover of mature canopy trees will disappear. Some degree of canopy cover can be maintained

in the long term at lower elephant densities but to preserve a semblance of climax woodlands requires elephant densities not to exceed 0,25/km^2*[36]*. Loss of woodlands affects biodiversity of entire protected areas and higher elephant densities will reduce productivity and may finally lead to soil erosion.

At present there is particular concern for habitats threatened by elephant in the following areas:

Botswana: Chobe National Park, Moremi, Linyanti and Kwando.
Namibia: Etosha National Park.
Zimbabwe: Hwange National Park, Gonarezhou National Park, the mid-Zambezi Valley and Sebungwe areas.

In addition to this, Zimbabwe is increasingly concerned that there is direct competition between elephant and black rhino for browse species in the dry season. The present high level of elephant in Zimbabwe is seen as a threat to the survival of black rhino.

3. Trade Data

31. National Utilization: None of the proposing Parties at present exploit elephant directly for their products either for commercial trade or for domestic consumption. Botswana indicates in its latest policy document*[17]* that it will crop elephants in the future as part of a sustainable use programme. Bell (pers. comm.) has advocated that a sustainable use programme should be introduced in South Luangwa National Park, Zambia, in order to meet the entire running costs of the Park. The direct harvest of elephants for their products is generally the lowest valued use for the species.

Elephant are hunted on safari in Zimbabwe (annual quota approximately 200 animals: 100 in state safari areas and 100 in communal lands), but this involves less than 0.3% of the total population. Elephant are killed to protect crops in communal lands (approximately 0.2% of the population per annum) and one communal land is intending to cull in 1992 to prevent further increase of its elephant population. Problem animal control is necessary in all the proposing countries but is normally well within sustainable limits.

In Zimbabwe, safari hunting produces up to 10 tonnes of ivory*[37]* annually but none of this enters commercial trade. Culling operations to protect habitats in National Parks may contribute up to 33 tonnes annually (5 000 elephant at an average total tusk weight of 6.6kg/animal). The full details of all ivory production and sales from 1981-1988 prior to the Appendix I listing of elephant are detailed in *ELEPHANT MANAGEMENT IN ZIMBABWE [35]*. A breakdown of the sources of ivory from 1985 to date is given in Annex 3.

Potential production from the proposing countries is likely to lie between 25 and 50 tonnes per annum depending on management practices in the year concerned*[37]*. Production is more dependent on the number of elephant in a country than the actual management system employed and will average a minimum of 0.1 tonnes per 1 000 elephant per annum even where no elephant are being exploited.

The minimum recurrent annual cost for successful protection of state protected areas in Africa is US$200/sq.km*[38,39,40]*. Taking Zimbabwe as a case

study, the annual recurrent cost of conserving 50,000km^2 of protected area is about US$10 million. Some 20 tonnes ivory per annum are expected to be produced for the next 14 years in the course of reducing elephant populations in state protected areas (Annex 1). Assuming that legal ivory will realise a value of US$500/kg, this production is worth US$10 million per annum and could meet the entire running costs of the state protected areas. The same is true to a lesser or greater extent for all the other countries in the region.

32. Legal International Trade: Since the listing of the species in Appendix I of CITES, none of the proposing countries has sold raw ivory on the international market. Prior to this, all countries sold a varying proportion of their production on the international market (Botswana: 75%; Malawi 20%; Namibia 90%; Zambia 80%; Zimbabwe 33% - approximate proportions).

The proposing countries have signed an Agreement for the establishment of an Ivory Marketing Centre (Annex 4). Features of this agreement are:

a) Maximum control of ivory sales within the region and exports from the region;

b) The return of all profits from sale of elephant products to conservation in the member states;

c) Setting of quotas by the Centre for ivory production by member States;

d) The prohibition of ivory imports by member states;

e) Provisions for the inclusion of other wildlife products to be marketed by the Centre;

f) Provisions for the admission of other range states as members of the Centre.

The marketing and control system to be implemented by this centre is given in Annex 5.

The following features of the system are drawn to the attention of the Parties to CITES:

1. **The system contains most of the beneficial features recently recommended in proposals for an Ivory Exchange*[41]*, although it predates this work.**

2. **By adopting a regional approach, those countries within the southern African region experiencing the greatest problems with elephant protection and management will receive the assistance needed to counter these problems. Major efforts will be made by the southern African states to raise conservation management in the region to a uniformly high level.**

3. **Exclusion of individual countries on the basis of current illegal hunting problems would result in negative effects and the region wishes to act positively. Thus the system will include all those countries of the region who wish to participate and can provide the formal, binding commitment.**

4. Large numbers of elephants in southern Africa occur outside protected areas. The continued existence of these elephants will probably depend entirely on rural community wildlife utilization programmes of the type already successfully established in the region. People in these communities already depend on income from elephants for their livelihoods.

33. Illegal Trade: Illegal trade in ivory in the region is relatively low but may be increasing following the listing of elephant in Appendix I of CITES. Malawi reports significantly higher levels of illegal hunting at present and Zimbabwe has lost perhaps 200 elephant since 1989 (in the period prior to this, normal illegal hunting seldom accounted for more than 20 elephant in any year). Data on recoveries of ivory from customs and law enforcement in the field in Zimbabwe (Annex 3) amount to about one tonne annually and there is no obvious trend since 1985.

The present level of illegal hunting is probably low for the following reasons:

a) Expenditure on conservation in the region is relatively high by standards applying to the remainder of Africa;

b) The majority of illegal hunting efforts are still being directed at black rhino in the region;

c) There is strong support for law enforcement in many areas from rural communities who manage their own wildlife for direct financial gain;

d) There is co-operation between countries in the region to reduce illegal hunting. Recently, Zambia*[21,22]* has greatly assisted Zimbabwe in its efforts to combat illegal incursions across the common border.

34. Potential Trade Threats: The proposing Parties see absence of trade as the greater threat to elephant survival in the region. They respect fully the desires of those range states wishing to retain their elephant populations in Appendix I and have taken maximum measures to ensure that the trade in southern Africa will not prejudice elephant populations in other parts of Africa.

341. Live Specimens: There is a very small trade in live elephant within the region. Elephant calves from culling operations in Zimbabwe and South Africa are used as founder populations for new areas (usually less than 50 in any year). Of the Zimbabwean calves, the majority are purchased by local farmers to stock their own land.

342. Parts and Derivatives: The proposals for trade in ivory and other elephant products have been dealt with fully in section 32.

4. Protection Status

41. National: In most of the region elephant are protected wherever they occur in national parks. Elsewhere they cannot be exploited without a permit.

Botswana: Elephant are not accorded any special legal protection. Sport hunting and citizen hunting of elephant has been prohibited since 1983 but is soon to be re-opened on state and tribal land.

Malawi: Elephant are not protected as a species.

Namibia: The desert elephant population of the Skeleton Coast Park and Damaraland are legally protected.

Zambia: Elephant are not protected as a species but sport hunting is presently prohibited.

Zimbabwe: Elephant are not protected as a species. Sport hunting is permitted except in national parks.

42. International: The species is listed in Appendix I of CITES. Botswana, Malawi, Namibia, Zambia and Zimbabwe have entered reservations against this listing. In accordance with Resolution Conf. 4.25 these Parties are continuing to regard the elephant as if it were listed in Appendix II. However, it is noted that Article XV(3) of the Convention provides for Parties entering reservations to be treated as states not Parties to the Convention.

43. Additional Protection Needs: It is doubtful if the elephant requires any additional legal protection. What is required, in the view of the proponents of this proposal, is adequate state expenditure on field protection and the devolution of rights to rural communities to manage and control elephant for their own benefit.

5. Information on Similar Species

There are no similar species in Africa. The Asian elephant (*Elephas maximus*) is listed in Appendix I of CITES. It is seen as unlikely that this proposal to list the species in southern Africa in Appendix II will prejudice the survival of the Asian elephant. The trade controls advanced in section 3 are considered sufficiently rigorous to exclude any Asian elephant ivory at the point of export. The measures included in this proposal for identifying the origin of ivory*[50]*, if applied by an importing state, should detect any Asian ivory mixed with African ivory.

6. Comments from Countries of Origin

The proposal is limited to the geographic populations of Botswana, Malawi, Namibia, Zambia and Zimbabwe. Article I(a) provides for a "geographically separate population" to be recognized as a species population. Countries bordering onto the region are:

South Africa - has entered its own proposal for Appendix II listing.

Angola - non-Party State, supports Appendix II listing.

Zaire - borders onto Zambia (not consulted). Supported Appendix I listing at 1989 CITES meeting.

United Republic of Tanzania - member of SADCC. Will seek downlisting to Appendix II when its own elephant population is secure.

Mozambique - supports Appendix II listing for other SADCC countries.

7. Additional Remarks

Barbier, Burgess, Swanson and Pearce from the International Institute for Environment and Development were part of the Ivory Trade Review Group (ITRG) which produced a major study in 1989. This study contributed to the decision taken by CITES Parties in 1989 to list the African elephant in Appendix I. These authors were not in total agreement with the recommendations of the ITRG and their recent book "Elephants, Economics and Ivory"*[41]* reflects the view that "economics offers an *added* dimension to the case for conservation and preservation, contrary to the popular image of economics as the despoiler of nature." The following are some quotes from the book:

> "... even an effective ban is ultimately of no avail. The prohibition of trading does nothing to address the problem of insufficient investment in elephants." (p138)
>
> "The ivory ban is completely misdirected in this regard. ... an ivory trade ban is, in the long run, a very perverse way in which to attempt to conserve the elephant." (p138)
>
> "There is one positive side to the ivory trade ban. ... it might provide the respite necessary for the construction and implementation of a truly effective package of regulation." (p139)
>
> "The positive impact of the trade ban should be felt only once, and only at the outset of the ban; thereafter, this gain will be chipped away by the illegal traders. ... If the ban is allowed to continue unaltered, then the costs will soon overtake and subsume the one-time benefit." (p139)
>
> "The ivory trade ban must be considered an interim measure, not a solution. Sustainable populations of the African elephant, as with so many other endangered species, will depend upon the development of reforms which constructively utilize the trade, rather than attempts to combat it." (p147)

Wijnstekers*[42]* remarks that "every transfer of a species from Appendix II to Appendix I could in this context be considered as an example of the failure of the Parties to fulfil their obligations under the Convention. The African elephant is the most striking example thereof."

During a Committee session at the 1989 CITES meeting in Lausanne, the observer from CGIF (Bertrand des Clerc) observed that "if CITES cannot control trade in a unique, conspicuous product such as ivory, it is doubtful whether effective trade controls can be implemented for any other wildlife products. This throws into question the entire *raison d'etre* for the Convention's existence."

The Parties proposing the transfer of the southern African elephant population from Appendix I to Appendix II base their case on the following key points:

1. **The species is not endangered with extinction in its southern African range;**

2. **It is unlikely to become extinct provided it has legal economic value to rural wildlife producer communities and governments who are required to invest in its protection;**

3. **The future of the species must be seen in its full socio- economic context in the current state of human development in Africa. Along with other wild fauna and flora, elephants must compete for their survival against alternative land uses. They can do this successfully provided they are not economically undervalued.**

This reality was recognized by the IUCN at its General Assembly in November 1990 in Perth, Australia, when it adopted a resolution on sustainable use of wildlife which stated, *inter alia*, that:

".... consistent with national and international legal obligations and policies, trade in clearly identified products derived from properly managed sustainable use of wildlife carried out in accordance with agreed guidelines and safeguards can confer incentives that enhance the conservation of the species or the population involved."

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ANNEX 1

INDIVIDUAL COUNTRY ESTIMATES OF ELEPHANT POPULATIONS

BOTSWANA: ELEPHANT POPULATION ESTIMATES				
Block	District	Area km^2	Estimate Nos	Density $/km^2$
A	Okavango River	11,000	1,000	0.09
B	Linyanti swamp	12,000	13,000	1.08
C	Chobe NP+Forest	13,000	17,000	1.31
D	Kasane	6,000	9,000	1.50
F	Okavango swamp	16,000	2,000	0.13
G	Nxai Pan	14,000	10,000	0.71
H	Nata Ranch	13,000	7,000	0.54
I	Eastern border	5,000	500	0.10
	Tuli Block	10,000	500	0.05
	TOTALS	100,000	60,000	0.60

Notes:

1. G.C. Craig*[43]* produced overall estimates for the northern Botswana population of 59 000 ± 16% (Sept.89), 49 000 ± 27% (April 90) and 56 000 ± 30% (Sept.90). Applying a maximum likelihood analysis based on the confidence intervals, taking into account an estimate of 500 elephant dispersing to Zimbabwe (Annex 6), allowing for a 5% growth for 1992, and adding 500 elephants for the Tuli Block, gives slightly under 60 000 animals. This has been rounded up. The estimate still falls within the overall confidence intervals given by Craig for a pooled estimate of 54 700 (± 15% i.e 46 500-63 000). Craig used no correction factor for elephants not seen within the transect stripwidth so that it is likely that the true number lies nearer the upper end of the confidence interval.

2. The estimates for the individual blocks within Botswana are based on Calef's report to the AERSG*[18]*, scaled and rounded to accord with the final total. Details of Craig's individual survey strata were not available at the time of compiling this proposal.

3. The estimates for individual areas are greatly affect by the season. During the dry season a larger proportion are to be found inside protected areas.

MALAWI: ELEPHANT POPULATION ESTIMATES				
Ref	District	Area km^2	Estimate Nos	Density $/km^2$
1	Nyika NP	3,200	100	0.03
2	Vwaza Marsh GR	1,000	250	0.25
3	Kasungu NP	2,400	900	0.38
4	Nkhotakota GR	1,800	400	0.22
5	Thuma For. Res.	200	50	0.25
6	Phirilongwe FR	200	100	0.50
7	Liwonde NP	500	300	0.60
8	Mangochi/ Namizumi area	600	100	0.17
9	Majete GR	700	200	0.29
	TOTALS	10,600	2,400	0.23

Notes:

1. Data from Cumming et al. (1990)*[18]* confirmed by Munthali*[20]*.

NAMIBIA: ELEPHANT POPULATION ESTIMATES				
Ref	District	Area km^2	Estimate Nos	Density /km^2
1	Etosha NP	22,000	2,500	0.11
2	Northern Namib	9,000	100	0.01
3	Damaraland	6,000	300	0.05
4	Kaokoland Rem.	19,000	100	0.01
5	Ovamboland S.	5,000	100	0.02
6	Kavango/Khadoum	43,000	600	0.01
7	Bushmanland/ Hereroland	5,000	500	0.10
8	Caprivi Strip	8,000	2,400	0.30
	TOTALS	117,000	6,600	0.06

Notes:

1. Estimate from Cumming et al.(1990).*[18]*

2. The Northern Namib Area has been taken to include the river course flowing into the Atlantic Ocean (Hoarusib, Hoanib, Uniab, Huab), the rocky plains and the mountains in Western Damaraland and Kaokoland using the areas of these habitats given by Viljoen and Bothma*[44]* and noting their movements*[45]*.

3. This is taken as part of the transitional and eastern population referred to by Viljoen and Bothma*[44]*. This population was estimated at 250 by Cumming et al. (1990)*[18]* and Douglas-Hamilton & Michelmore (1991)*[46]*.

4. This is taken as part of the transitional and eastern population referred to by Viljoen and Bothma*[44]*.

5. An arbitrary allowance for the area immediately north of Etosha Pan.

6. Douglas-Hamilton & Michelmore (1991)*[46]* show this entire area as part of the Namibian elephant range.

7. Estimate based on Douglas-Hamilton & Michelmore (1991)*[46]* and Cumming et al. (1990)*[18]*.

8. Caprivi Strip includes Mahango Game Park, Western Caprivi Game Reserve and Eastern Caprivi Communal Area. Estimate based on Douglas-Hamilton & Michelmore (1991)*[46]*.

9. The main elephant populations in Namibia are counted on full aerial surveys.

ZAMBIA: ELEPHANT POPULATION ESTIMATES				
No.	District	Area km²	Estimate Nos	Density /km²
	NATIONAL PARKS			
	Luangwa Valley Complex			
1	North Luangwa NP	4,600	5,000	1.09
2	South Luangwa NP	9,000		
3	Luambe NP	300	10,000	0.83
4	Lukusuzi NP	2,700		
5	Kafue NP	22,400	5,000	0.22
6	Lower Zambezi NP	4,000	2,000	0.50
	Remaining Parks			
7	Sioma Ngwezi NP	3,500		
8	Sumbu NP	2,000		
9	Isangano NP	800		
10	Liuwa Plain NP	3,700		
11	Lusenga Plain NP	900		
12	Mweru Wantipa NP	3,100		
13	West Lunga NP	1,700	5,000	2.94
	Subtotal:	59,000	27,000	0.46
	GAME MANAGEMENT AREAS			
	Luangwa Valley			
14	Lumimba *	4,500		
15	Lupande North *	2,000		
16	Lupande South *	2,900		
17	Munyamadzi *	3,300		
18	Sandwe *	1,500		
19	Musalango *	17,400		
20	West Petauke	4,100	5,000	1.22
	Remaining GMAs			
21	Mulobesi *	3,400		
22	Sichifula *	3,600		
23	Luano	8,900		
24	Mansa	2,000		
25	West Zambezi	38,000		
26	Mumbwa *	3,400		
27	Chiawa *	2,000	5,000	2.50
	Subtotal	95,000	10,000	0.11
	TOTALS	154,000	37,000	0.24

* - indicates local communities organised into LIRDP or ADMADE programme where benefits of wildlife are being returned to people..

Notes:

1. Apart from the Luangwa Valley area, no formal surveys have been done in the remaining National Parks or GMAs. The Zambian Department of Wildlife and National Parks is planning a major national survey to take place within the next 12 months.

2. Surveys in the Luangwa Valley Complex (National Parks and GMAs) have taken place regularly since 1987 (R.H.V. Bell, pers.comm.). In 1987, two counts in South Luangwa National Park and Lupande GMA gave estimates of about 15,000 animals. Following an anthrax outbreak in 1987-88, elephant dispersed widely within the Complex so that succeeding surveys the same area of the Complex gave very low totals in 1988 (< 3,000 animals). Numbers have been increasing steadily in the South Luangwa Park and Lupande since then (1989 - 5,000, 1990 - 6,000, 1991 - 10,000) as elephants appear to be returning to their former range.

3. Success in law enforcement in the Park (520 illegal hunters arrested in 1990 and 1580 weapons confiscated), indicated by a declining ratio of illegal activity to law enforcement effort, gives some confidence that elephants populations are now increasing and the above figures are minimum estimates.

ZIMBABWE: ELEPHANT POPULATION ESTIMATES					
No.	Ref	District	Area km^2	Estimate Nos	Density /km^2
		Parks Estate			
1	A	Hwange NP+Deka SA	15,100	26,700	1.77
2	B	Matetsi Complex	4,300	3,600	0.84
3	C	Chizarira NP	1,900	2,000	1.05
4	C	Chete SA	1,100	1,100	1.00
5	E	Tuli SA	400	300	0.75
6	F	Gonarezhou NP	5,100	5,500	1.08
7	D	Zambezi Valley	11,900	14,400	1.21
8	D	Matusadona NP	1,400	1,600	1.14
9	G	Hartley "A" SA	400	100	0.25
10	E	Doma SA	800	300	0.38
11	D	Chirisa SA	1,700	2,700	1.59
Subtotal:			44,100	58,300	1.32
		Other State Land			
12	E	Forest Areas	8,700	1,000	0.11
13	H	State Farms	2,000	100	0.05
Subtotal:			10,700	1,100	0.10
		Communal lands			
14	E	Ndowoyo	400	400	1.00
15	E	Gaza Khomanani	1,500	600	0.40
16	E	Beit Bridge	400	200	0.50
17	B	Maitengwe	2,000	200	0.10
18	B	Tsholotsho	1,000	300	0.30
19	E	Hwange	1,000	100	0.10
20	D	Binga	2,000	1,400	0.70
21	B	Gokwe	1,000	500	0.50
22	B	Omay	2,700	1,900	0.70
23	E	Kanyati/Gachegache	400	100	0.25
24	E	Mukwichi	1,000	300	0.30
25	B	Dande	3,000	800	0.27
26	E	Remainder	10,000	500	0.05
Subtotal			26,400	7,300	0.28
27	H	Commercial Farms	10,000	1,400	0.14
Subtotal			10,000	1,400	0.14
TOTALS			91,200	68,100	0.75

Reference to estimates:

A - 1990 survey corrected using maximum likelihood estimate.

B - 1990 survey increased by 5% to allow for population growth in 1991.

C - 1989 survey graphically adjusted for previous years' estimates and 2 years of growth since 1989.

D - 1989 survey raised by 1.103 to allow for two years increase.

E - Estimate based on safari operators'reports.

F - 1991 survey preliminary estimate.

G - Report by staff.

H - Landholders' report.

Notes:

1. The Hwange population was estimated by Gibson (1989)*[47]* at 23,486 animals (± 28%) and by Jones (1990)*[48]* at 28,729 animals (± 26%). The given figure is based on a maximum likelihood estimator applied to the sequence of surveys from 1980 to date which takes into account immigration from Botswana and culling operations (Annex 6). The result lies well within confidence intervals for both surveys.

2. The above population of 68,000 animals is some 25,000 in excess of the desired level of 43,000 elephants (the desired level is a compromise between conservation of habitats and biological diversity and the tourist industry).

   The maximum number of elephants that can be culled annually is about 5,000 (based on practical considerations). The population is continuing to increase at 5% per annum. This means that some 68,000 elephants will have to be removed over the next 13-14 years *in order to reduce the population to the level of 43,000 elephants*.

3. There have been suggestions*[46]* that the high elephant numbers estimated between Zimbabwe and Botswana may be an artefact caused by movement of animals between the two countries. In three successive annual dry-season surveys (1988-1990) carried out in Botswana*[6,43]* over 50,000 elephants have been estimated. Since 1989 simultaneous surveys have been carried out on the Zimbabwe side of the border (Matabeleland North) and over 27,000 elephant have been estimated on each occasion. Apparently high growth rates can be accounted for within the confidence intervals of the surveys.

4. An analysis has been carried out to assess the level of possible one-directional movement (i.e. net immigration) between Botswana and Zimbabwe. Because of population reductions on the Zimbabwe side of the border, it is reasonable to assume that elephant may migrate from Botswana to the areas where Zimbabwe elephants are at a lower density. The results of this analysis (Annex 6) indicate a net annual immigration into Zimbabwe of about 2% of the Botswana population (less than 1,000 animals) when there is significant culling in Zimbabwe.

ANNEX 2

HUMAN POPULATIONS IN THE REGION

The future of elephant in the southern African region is inextricably linked to the growth of the human population and other factors such as rainfall, soil, recurrent costs of conservation and human poverty. A simple model is presented which attempts to predict the future under one set of conditions.

HUMAN POPULATION DATA					
COUNTRY	Area km^2 x 1000	Present Population millions	Population Density per km^2	Population growth rate % per annum	Population in 2000AD millions
Botswana	585	1.30	2.22	3.51	1.77
Malawi	94	7.90	83.97	3.31	10.59
Namibia	824	1.16	1.41	2.66	1.47
Zambia	741	7.60	10.26	3.76	10.59
Zimbabwe	387	10.10	26.12	3.15	13.35
Reference	1	2		2	

1. World Resources 1987. IIED/The World Resources Institute, Basic Books Inc., New York. Area excludes major waterbodies.

2. Cumming D.H.M and I. Bond (1991). Animal production in southern Africa: present practice and opportunities for peasant farmers in arid lands. Report prepared for IDRC.

Humans compete with elephant for the same resources and it has been shown that elephant densities have an inverse relationship with those of humans*[23]*. The following crude model has been developed to simulate the data of present elephant population levels and to predict the likely status of elephant at the turn of the century.

1. Initial elephant densities in the 5 countries are assumed to be related to rainfall*[49]*:

$$D_{e1} = 0.001 \times R \quad \text{where R is rainfall in mm.}$$

2. This density is assumed to be modified by human densities as follows:

$$D_{e2} = D_{e1} \times (1 - 0.029D_h) \quad \text{where } D_h \text{ is human density/km}^2$$

3. This density is assumed to be modified by soil fertility as follows:

$$D_{e3} = D_{e2} \times (1 - .263S_t) \quad \text{where } S_t \text{ is a soil ranking on a scale of 1-4}$$

4. This density is assumed to be modified by the level of poverty in the country as measured by the ratio of external debt/gross national product. The formula assumes that the higher the debt ratio above ten percent, the fewer will be the government funds to conserve wildlife, the greater will be the level of poverty and the greater the incentive to kill elephant:

$$D_{e4} = D_{e3} \times (1 - 0.009(R_d - 10)) \quad \text{where } R_d \text{ is the debt ratio (\%)}$$

5. The final elephant population is derived by multiplying the final density by the land area of the country and using an overall constant of 2.3 to obtain the present population estimates (the constant is introduced in the calculation of D_{e3} in the table below). It is assumed that the debt ratio remains the same in the year 2000 - which is far from a likely situation.

COUNTRY	R mm	D_{e1}	D_h	D_{e2}	S_t	D_{e3}	R_d	D_{e4}	Ele. Pop. 1991	Ele. Pop. 2000
Botswana	250	0.25	2.2	0.23	3.0	0.112	31	0.09	54.0	52.0
Malawi	1000	1.00	84.0	0	1.0	0.000	45	0.00	Extinct	
Namibia	50	0.05	1.41	0.05	3.5	0.009	20	0.01	6.5	6.5
Zambia	1000	1.00	10.3	0.69	1.5	0.961	114	0.06	38.0	29.2
Zimbabwe	800	0.80	26.1	0.17	2.0	0.185	28	0.16	68.1	Extinct

The model insists that the Malawi population is already extinct in 1991. This is consistent with Parker and Graham's findings that on fertile soils elephant go extinct at human densities of about 80 people/km^2. A committed government can maintain limited populations in protected areas in spite of the model.

Apart from Malawi, the model predicts the overall national populations fairly closely. There are, however, a range of constants which would give a similar result.

When the projected human populations for the year 2000 are "plugged into" the model, a number of interesting results are predicted. The Zimbabwe population goes extinct. This too is consistent with Parker and Graham's findings that on less fertile soils the extinction point is around 20 people/km^2. The Botswana and Namibia elephant populations hardly change, because their human populations are so low. The Zambian population decreases further as the human densities begin to pose a serious threat to the elephant populations.

None of this modelling should be taken too seriously because, as stated earlier, alternative models are possible and, even in this model, a range of outcomes are possible depending on the choice of constants. However, the point to be made is that the future of the elephant population will be dependent on human population increase. Whilst it may be possible that limited populations can be conserved in protected areas, it is unlikely that elephant will survive in a rural agricultural setting unless they provide a more attractive alternative for land use than at present. That is, they must have a high economic value.

ANNEX 3

SOURCES OF ZIMBABWE IVORY PRODUCTION 1985-1991
(excluding sport hunting)

(all figures in kilogrammes)

YEAR	CULLING	PROBLEM ANIMAL CONTROL	NATURAL DEATH	ILLEGAL HUNTING	CONFIS -CATED	OTHER	TOTAL
1985	17 962	2 225	673	684	547	578	22 669
1986	11 660	2 873	1 011	346	820	29	16 739
1987	6 822	3 236	2 467	681	544	19	13 769
1988	5 587	3 143	2 043	365	694	27	11 859
1989	673	1 994	2 475	408	366	53	5 969
1990	224	2 701	1 677	820	171	365	5 958
1991	1 650	2 067	2 395	390	219	0	6 721
TOTAL	44 578	18 239	12 741	3 694	3 361	1 071	83 684

NOTES:

1. The figures above represent production rather than sales. Quantities sold each year do not necessarily match the production.

2. Major culls: 85 - 4000, 86 - 4 000, 87 - 1 500, 88 - 2 000.

3. PAC has remained constant at about 100 animals/year.

4. Ivory from natural mortality appears to have doubled in the years without large culling operations, although very few animals are represented (<100).

5. Illegal hunting shows no trends. It should be noted that this does not reflect successful poaching. In the last two years an estimated 5 tonnes of ivory has been taken by illegal hunters.

6. Confiscations include ivory of unknown origin (e.g. Mozambique). The amounts involved indicate 10-20 animals per year from these sources. Although there appears to be a decrease in 1990-91, it is doubtful if it is statistically significant.

7. "Other" ivory includes animals shot for veterinary reasons.

8. Present stocks are about 20 tonnes.

ANNEX 4

AGREEMENT

FOR THE ESTABLISHMENT OF THE

SOUTHERN AFRICAN CENTRE

FOR IVORY MARKETING

AGREEMENT

FOR THE ESTABLISHMENT OF THE

SOUTHERN AFRICAN CENTRE

FOR IVORY MARKETING

The Government of the Republic of Botswana, the Government of the Republic of Malawi, the Government of the Republic of Namibia, the Government of the Republic of Zambia and the Government of the Republic of Zimbabwe

recognizing the advantages of controlling the trade in elephant ivory and other wildlife products on a regional basis;

aware that a regional strategy will encourage the acquisition at national level of maximum revenue from sales of wildlife products;

noting the concern of countries outside the Southern African Region with respect to the relationship between illegal trade in elephant products (particularly ivory) on the one hand and the declines in elephant populations on the other;

pursuant to the understanding agreed among certain Wildlife Authorities of the SADCC countries at the CITES meeting in Lausanne, Switzerland, on 20th October, 1989;

pursuant also to the agreement between them to adopt the measures specified in the Southern African Ivory Marketing and Control System;

pursuant further to the decision of the SADCC Council of Ministers at its meeting in Lusaka, Zambia, held from 29th to 30th January, 1990, to establish a Southern Africa centre for ivory marketing.

HEREBY AGREE as follows -

ARTICLE I
INTERPRETATION

In this Agreement

"Board" means the Board of Management of the Centre established by Article V;

"Capital Fund" means the capital fund of the Centre established under Article VII;

"Chairman" means the Chairman of the Board as provided in Article V;

"Centre" or "SACIM" means the Southern African Centre for Ivory Marketing established by Article II;

"CITES" means the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora;

"Director" means the Director of the Centre appointed under Article VI;

"Elephant Conservation Fund" means the elephant conservation fund of the Centre, established under Article VIII;

"Financial year" means the financial year of the Centre prescribed in Article IX;

"hunting trophies" means wildlife trophies taken and owned by a hunter under appropriate licence;

"ivory" includes confiscated ivory;

"member" means each of the five governments signatory to this Agreement and any other government subsequently becoming a party to it under Article XIV;

"SADCC" means the organization known as the Southern Africa Development Co-ordination Conference established by a Memorandum signed at Harare, Zimbabwe, on 21st July, 1981.

ARTICLE II
ESTABLISHMENT OF THE CENTRE

There is hereby established a centre to be known as the Southern African Centre for Ivory Marketing (SACIM) which shall be jointly owned by the members and shall be located in the Republic of Botswana.

ARTICLE III
OBJECTIVES OF THE CENTRE

The objectives of the Centre shall, in respect of elephant populations and elephant products of the member countries, be -

(a) to establish, monitor and control a simple system for the marketing of ivory and other elephant products;

(b) to establish, control and operate a central facility to receive, store, record by inventory, mark and sell elephant products, it being understood that all sales will be conducted in convertible currency;

(c) to advise on, assist, support and strengthen elephant product manufacturing and processing industries, so as to increase value added production;

(d) to advise on, promote and secure markets in order to obtain optimum benefits from the sale of elephant products;

(e) to procure and facilitate on behalf of the members the sale of elephant products and remit to each member the proceeds generated by the sale of the products which originated from that member, less any deductions agreed by the Board as contribution by that member to the funds of the Centre.

For the avoidance of doubt, it is hereby agreed that -

(i) no funds shall be remitted to a member except such funds as are in payment for the products the value of which accrues to that member;

(ii) the Centre shall apply all its funds solely for the objectives of this Agreement.

(f) to act as repository for information on all aspects of elephant management and conservation, including elephant biology, population statistics, movements and behaviour as well as relationships between elephants and their habitats, and to disseminate such information;

(g) to assist in determining the optimum elephant populations in the member countries and to advise or assist the members in the carrying out of the management of elephants to achieve such optimum populations;

(h) to make recommendations for the conservation of elephants and elephant habitats, and where necessary, advise and assist in carrying out such recommendations;

(i) to set up and operate such facilities as are deemed necessary by the Board for establishing the legality of the ivory deposited at the Centre;

(j) to do all such other things as are incidental or conducive to the foregoing functions or any of them.

ARTICLE IV
OBLIGATIONS OF MEMBERS

Every member shall -

(a) provide to the Centre any data pertaining to management and research regarding elephants and elephant products in its country, in accordance with the requirements of the Board;

(b) take note of any advice given by the Centre with respect to conservation and management of elephants and elephant habitats;

(c) in the event that elephant population monitoring has not been established in its country, initiate an appropriate programme with the guidance of the Centre for such monitoring;

(d) market all its elephant ivory exclusively through the Centre except hunting trophies and those quantities purchased by national manufacturing industries pursuant to paragraph (j), and accept the guidance of the Centre in regard to the manner of marketing all other elephant products;

(e) pay to the Centre a fee equivalent to such percentage of the proceeds realised by the Centre on each sale of the member's elephant products as may be determined by the Board, and hereby agree that the Centre may deduct such fee from the proceeds of each sale upon completion of the sale;

(f) prohibit the importation into its country of all elephant products and the exportation of commercial shipments of worked ivory until otherwise advised by the Centre;

(g) permit and enforce exports of whole ivory tusks from its country only to the Centre except hunting trophies;

(h) adhere to and not exceed the annual ivory production as determined by the Centre in respect of its country;

(i) maintain a register and set up a store for all ivory in its country and shall appoint a responsible officer -

(i) to take charge of the register and the store;

(ii) to effect such marking of the ivory as the Centre may specify;

(iii) maintain and submit to the Centre such detailed records of the ivory as the Centre may specify and submit such records to the Centre at such intervals as the Centre may specify;

(j) allow only such residents of its country as are registered as approved manufacturers of ivory products to purchase ivory in that country for processing;

(k) submit to the Centre, at such frequency as the Centre may specify, a register of resident approved manufacturers of ivory products in its country and detailed records specifying the amount of ivory originating from its country purchased by such residents;

(l) not allow any private dealing in or the re-sale of unworked ivory;

(m) consider increasing penalties for offences of poaching of elephants and smuggling elephant products, particularly ivory, to the minimum recommended by the Centre;

(n) take all such measures (legislative, administrative or otherwise) as

are necessary for the purposes of this Agreement or as are from time to time recommended by the Centre.

ARTICLE V
BOARD OF MANAGEMENT

1. There shall be a board to be known as the Board of Management which shall, subject to this Agreement, be responsible for policy direction and control of the management of the Centre.

2. For the purposes of discharging its responsibilities the Board shall have all the powers necessary to achieve the objectives of the Centre and, further, shall have power to determine its own procedures and to make such rules and regulations as it deems fit for the administration of the Centre.

3. The Board shall consist of one representative of each member who shall be selected by the member from amongst serving senior officers of the Department of Wildlife of the member.

4. (1) The Board shall meet -

(a) twice every year in ordinary session;

(b) at any time in extra-ordinary session convened by the Chairman at his own initiative or upon a written request to the Chairman by any member.

(2) Unless the Chairman otherwise directs, meetings of the Board shall be held at the Centre.

(3) The chairmanship of the Board shall rotate yearly among the members and the representative on the Board of the member holding the chairmanship shall preside over any meeting during the currency of that member's tenure notwithstanding that the meeting is hosted in the country of another member.

5. Save as otherwise provided in this Agreement, at any meeting of the Board -

(a) every member shall be represented by a person with appropriate credentials presented to the Director either in advance or at the meeting;

(b) all decisions of the Board shall be by consensus of the members;

(c) the quorum shall be formed by a simple majority of the members;

(d) the Director, or his duly designated representative, shall be present and may participate in the deliberations and shall provide the Secretariat;

(e) the representative of a member may be accompanied by any number of experts or advisers who may participate in the deliberations as part of his delegation;

(f) the Board may invite appropriate observers.

ARTICLE VI
DIRECTOR AND OTHER STAFF OF THE CENTRE

1. The Board shall appoint, upon such terms and conditions as the Board may determine, an officer of the Centre who shall be designated as the Director of the Centre.

2. The Director shall be appointed from amongst persons appearing to the Board as qualified and as having had experience and shown capacity in matters relating to the technical activities of the Centre, and to the management of wildlife.

3. The Director shall be the chief executive of the Centre and as such he shall, subject to this Agreement and to any general or special directions of the Board or the Chairman -

(a) be responsible for -

(i) the implementation of the decisions of the Board;

(ii) carrying out the activities of the Centre;

(iii) all matters relating to the general management and administration of the Centre;

(b) prepare the budget and programme of activities of the Centre for each financial year and submit them to the Board for approval not later than at the meeting of the Board immediately preceding the beginning of the financial year to which they relate;

(c) control the expenditure and administer the finances of the Centre

and cause proper books of account of the Centre to be kept and maintained;

(d) prepare and submit to the Board for approval administrative, financial and staff regulations;

(e) consider all matters to be presented to the Board and submit his recommendations thereon to the Board;

(f) submit to the Board, at its first meeting in ordinary session after the end of each financial year, a report on the activities of the Centre for that financial year, including a financial statement on revenue and expenditure and on assets and liabilities of the Centre as audited by the auditors appointed under Article IX;

(g) represent the Centre in its relations with third parties;

(h) prepare and keep up to date all data manuals and other records and publications used at the Centre;

(i) perform such other duties as are assigned to him in this Agreement or as may be assigned to him by the Board or the Chairman on behalf of the Board.

4. (1) In addition to the Director, the Board may appoint other senior technical and administrative staff of the Centre upon such terms and conditions as the Board shall determine.

(2) For the purpose of subclause (1), the Board shall determine which of the staff posts shall be classified as senior.

5. The Director shall appoint the auxiliary staff needed in the running of the Centre within such grades and upon such terms and conditions as the Director shall, with the approval of the Board, determine.

6. The staff appointed under this Article, including the Director, shall, as far as possible and having regard to the interests of the Centre, be nationals of the member countries but may, where suitably qualified candidates are not available amongst nationals of the member countries, include nationals of other countries.

7. Communications from the Director to each member shall be addressed to that member's representative on the Board.

ARTICLE VII
CAPITAL FUND

There shall be a Capital Fund for the establishment, development and operation of the Centre, the size and administration of which shall be determined by the Board from time to time and which shall consist of contributions by each member at such rates as the Board shall determine from time to time.

ARTICLE VIII
ELEPHANT CONSERVATION FUND

There shall be an Elephant Conservation Fund for the Centre, the size and administration of which shall be determined by the Board from time to time and which shall -

(a) be generated by the sale of ivory and such other elephant products as agreed by the Board from time to time and by receipt of donations;

(b) be used for the promotion of elephant conservation and management by members.

ARTICLE IX
FINANCIAL YEAR AND AUDIT OF ACCOUNTS

1. The financial year of the Centre shall be a period of twelve months determined by the Board:

Provided that the first financial year of the Centre may be a period shorter or longer than twelve months as determined by the Board.

2. The accounts of the Centre shall be audited annually by auditors appointed or re-appointed annually by the Board and who are registered and recognized as such under the laws of a member state.

3. Any arrangement under which the auditors shall audit the accounts of the Centre shall contain an obligation requiring the auditors to submit copies of their report on the accounts to the Board and in sufficient numbers for circulation to all members.

4. The accounts, books, registers or other documents relating to the financial

management of the Centre shall, at all reasonable times, be open for inspection by the representative on the Board of any member.

ARTICLE X
UNDERTAKINGS OF THE MEMBERS

Each member hereby undertakes to -

(a) promptly pay its contributions to the Capital Fund and the Elephant Conservation Fund as determined by the Board under Articles VII and VIII respectively;

(b) release on request by the Board, subject to the terms and conditions of service applicable to officers in its employment (which terms and conditions shall, in connection with this Agreement, be applied as favourably as possible to the officers concerned), any of its officers appointed or needed in the service of the Centre; and

(c) extend to the Centre all possible facilities for carrying out its tasks within the territorial jurisdiction of that member, particularly in connection with the free movement of delegates to meetings of the Board and tax and duty-free treatment of ivory and other elephant products, funds, materials, equipment and supplies necessary for the operation of the Centre.

ARTICLE XI
LEGAL STATUS PRIVILEGES AND IMMUNITIES OF THE CENTRE

The Centre shall enjoy international legal personality and it shall have, in the territory of each member -

(a) the legal capacity required for the performance of its functions;

(b) the power to acquire or dispose of movable or immovable property;

(c) the privileges and immunities granted by the member to agencies of the United Nations Organization, which privileges and immunities shall also be extended to the staff of the Centre in the same way that they are extended to the staff of such agencies.

ARTICLE XII
PROPERTY OF THE CENTRE

1. The Director shall at all times keep and maintain -

(a) an inventory of all property, movable or immovable, belonging to the Centre;

(b) an asset register showing the assets of each member at the Centre and the book value thereof.

2. Any property or funds belonging to the Centre, wherever located and by whomsoever held, shall be immune from search, requisition, confiscation, expropriation or any other form of seizure by judicial, executive or legislative action of a member.

ARTICLE XIII
ENTRY INTO FORCE AND WITHDRAWAL

1. This Agreement shall enter into force upon the date of signature.

2. Subject to the other provisions of this Article, a member may at any time withdraw from this Agreement by giving written notice to that effect to the Director who shall, immediately upon receipt of the notice -

(a) communicate it to all other members; and
(b) acknowledge receipt thereof to the member withdrawing, stating the date on which he received the notice.

3. The withdrawal of a member from this Agreement shall take effect one year from the date on which the Director received the notice of withdrawal from the member and during that period such member shall continue to be bound by this Agreement.

4. A member withdrawing from this Agreement shall be entitled to be reimbursed an amount equivalent to the book value of its immovable assets and the return of its movable assets as shown in the register of assets maintained under Article XII, less any amount owing by that member to the Centre.

ARTICLE XIV
ADMISSION OF NEW MEMBERS

1. (1) The government of any country may apply to the Board through the Director to become a party to this Agreement.

(2) In considering such applications, the Board shall have regard to -

(a) geo-political considerations including relationship to SADCC;

(b) the country's standing with respect to CITES;

(c) the country's status with respect to elephant conservation and ivory trade controls; and

(d) any other factor that the Board deems relevant.

2. A government shall not become a party to this Agreement under this Article unless its application has been unanimously approved by the Board.

3. Where the Director receives an application under this Article he shall give notice thereof to all members at least sixty days prior to the Board meeting at which the application will be considered.

4. Where an application made under this Article has been approved, the Director shall send a copy of this Agreement to the government which made the application.

5. This Agreement shall enter into force with respect to a government which becomes a member under this Article on such date as may be agreed upon between that government and the Board.

ARTICLE XV
AMENDMENTS AND REVISION

1. This Agreement may be amended or revised at any meeting of the Board by the unanimous decision of the members.

2. Any proposal for an amendment or revision of this Agreement shall be circulated in writing to members at least sixty days before the opening of the meeting at which it is to be considered.

3. Any amendment or revision of this Agreement shall enter into force as from the date of the decision by which the Board adopted it.

ARTICLE XVI
ISSUES OF INTERPRETATION OF THIS AGREEMENT

Any issue arising as to the interpretation of this Agreement or of any provision thereof shall be settled by the consensus of the Board in meeting and the decision of the Board thereon shall be final and binding on the members.

ARTICLE XVII
REGISTRATION WITH SADCC AND CITES

The Government of the Republic of Botswana shall register this Agreement with the SADCC Secretariat and with the CITES Secretariat within sixty days of its entry into force with respect to the signatory members.

ARTICLE XVIII
APPLICATION OF THIS AGREEMENT TO OTHER WILDLIFE PRODUCTS

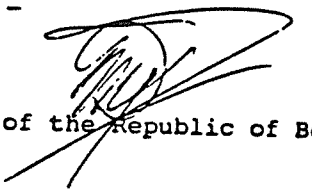
This Agreement in regard to elephant populations and elephant products may be extended to other wildlife populations and products as and when decided by the Board.

IN WITNESS WHEREOF the undersigned, duly authorized, have signed this Agreement for and on behalf of their respective governments.

DONE in the English language at Lilongwe, Malawi this twentieth day of June 1991.

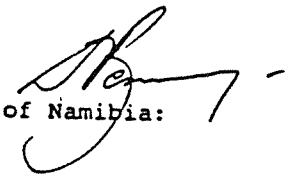
SIGNATURES

For and on behalf of -

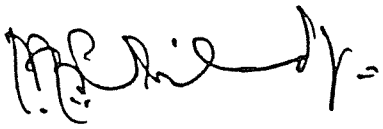


The Government of the Republic of Botswana:

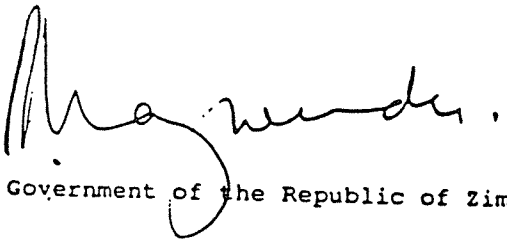
The Government of the Republic of Malawi:



The Government of the Republic of Namibia:



The Government of the Republic of Zambia:



The Government of the Republic of Zimbabwe:

ANNEX 5

MARKETING AND CONTROL SYSTEM

to be implemented by

THE SOUTHERN AFRICAN CENTRE FOR IVORY MARKETING

PREAMBLE

The Agreement for the Southern African Centre for Ivory Marketing was signed in Lilongwe, Malawi, on 20th June 1991. This Annex to the treaty is a technical manual specifying the systems to be adopted to achieve the objects of control and marketing of ivory and other elephant products. The system may be altered from time to time by the Board of Management to give greater effect to its objectives (Article V(2) of Treaty) or to include other wildlife products (Article XVIII of Treaty). Some of the provisions in this manual have already been included in the treaty and where this is the case it is noted.

OBJECTIVES

These are fully defined in Article III of the treaty. An additional long-term objective is to strengthen local manufacturing industries and increase value-added production before export.

MECHANISMS

A. CONSERVATION CONTROLS ON MEMBER STATES

1. Elephant populations of member countries will be monitored regularly by standardised survey techniques (Article IV(c)).

2. The Board of the Centre will make recommendations to members on optimum elephant populations (Articles III(g) & III(h)).

3. The Board will establish and review annually maximum ivory production limits for each country, taking into account the following:

   (a) Quotas will be based on the maximum sustained yield from the total elephant population in a member State. This will be calculated on a simple basis of 0,5 tonnes of ivory per 1 000 elephant.

   (b) Quotas will take into account existing stocks of raw ivory in member States at the time the Centre becomes operational.

   (c) Quotas will take into account hunting trophies and ivory consumed locally in member States which, although not marketed through the Centre, will be accounted for in the records of the Centre.

These quotas will be regarded as overall "production limits". It is not expected that any member State will manage its elephant for maximum ivory production and so it is not expected that production will ever approach the biological ceilings. However, the quotas are included as an overall conservation control (Article IV(h)).

4. All members will provide to the Centre any data pertaining to management and research on elephants and elephant products within their countries (Article IV(a)).

5. Members will take note of advice given by the Centre on conservation and management of elephants and elephant habitats (Article IV(b)).

B. TRADE CONTROLS ON MEMBER STATES

1. No member State will import raw ivory or unprocessed elephant products from any other country (Article IV(f)).

2. No member State will import worked ivory or processed elephant products from any country which is not a member state.

3. No member State will export raw ivory, with the exception of hunting trophies, or unprocessed elephant products except through the Centre (Article IV(d)).

4. Only approved resident manufacturers in member States will be allowed to purchase raw ivory from their government store. Member States will examine their measures for controlling internal trade to ensure that it cannot be used to any significant extent to launder illegal ivory.

5. International purchasers must be approved and registered manufacturers in their respective countries, or approved and registered manufacturers' trade associations. Certificates to this effect must be provided, bearing the seals of the national Management Authority.

6. All purchasers of ivory from the Centre must sign an agreement not to purchase from any other sources.

7. All member States will appoint a designated officer responsible for ivory matters including;

   (a) Responsibility for the government ivory store;

   (b) Maintenance of a register for raw ivory, which includes details of the source of each tusk entering the store;

   (c) The marking of all tusks to specifications of the Centre;

   (d) Submission of records to the Centre including details of tusks exported as hunting trophies and all ivory purchases by local manufacturers.

   (Article IV(i))

8. All member States will prohibit private dealing in raw ivory. (Article IV(l)).

9. All member States will endeavour to standardise and increase penalties for illegal hunting and trafficking in elephant products (Article IV(m)).

10. Only whole tusks will be exported. A whole tusk is defined as a tusk containing the tip of the pulp cavity.

11. The Centre will issue unique export certificates printed on security paper. Importing countries must insist upon both a national permit and the SACIM certificate before allowing importation. An additional SACIM security tag may be affixed to each tusk.

12. Member States will abide by the following procedures for confiscated ivory:

(a) Any significant amount of confiscated ivory will be tested by the method of isotopic analysis*[50]* to determine its area of origin.

(b) Ivory which originates from other member States and from non-member States which are not Parties to CITES:

i) Members may include up to one tonne of such ivory in their annual production quota;

ii) Amounts exceeding one tonne may not be accumulated in any State beyond the financial year of the Centre, but will be transported to the Centre for sale;

iii) Amounts exceeding one tonne will be sold by the Centre and the proceeds deposited in the Elephant Conservation Fund of the Centre for use as directed by the Board.

iv) A percentage (to be fixed by the Board) of the value of any confiscated ivory falling in category (iii) above will be credited to the member State responsible for the confiscation prior to the balance being deposited in the Conservation Fund.

v) No member State will have any claim on confiscated ivory which it believes to have originated from its country.

(c) Ivory which originates from non-member States who are Parties to CITES with elephant populations are listed on Appendix I:

i) The ivory will be offered for return to the country of origin at 50% of the current commercial value for ivory as determined by the Centre;

ii) If the ivory is not redeemed under this condition within 12 months of the confiscation it will be sold by the Centre and clearly labelled as Appendix I ivory from the country of origin;

iii) The sale of such ivory will be treated according to paragraphs (b)(iii) and (b)(iv) above.

ANNEX 6

MAXIMUM LIKELIHOOD ANALYSIS
of the
ELEPHANT POPULATION ESTIMATES FOR MATABELELAND NORTH, ZIMBABWE

Aerial sample surveys have been carried out in Hwange National Park and the Matetsi Complex since 1980. These two areas include the total elephant population of Matabeleland North with the possible exception of a small number of animals in communal land and certain State Forest Areas.

The aerial survey techniques have remained constant over this time according to the method of Jolly*[51]* and confidence intervals have been derived for each estimate. The total population estimates for Matabeleland North used in the analysis which follows are pooled estimates from the Hwange and Matetsi populations.

Because each data point has confidence intervals attached to it, it is possible to attach a degree of likelihood to population values above or below the central estimate. The following technique has been used in the simulations below:

1. For any assumed starting population in 1979 and an assumed rate of growth for the population, the size of the population in any year thereafter can be calculated by applying the growth rate to the population from the year before and deducting the numbers of animals killed in that same year.

   i.e. $N_t = (1 + r).N_{t-1} - C_t$

   where N_t is the population in year t;
   r is the rate of growth; and
   C_t is the number of animals killed in the year t.

2. The predicted data point for any given year has been compared with the actual population estimate for that same year. By substituting the two values in the mathematical formula for the normal distribution associated with the estimate and using the value of the standard deviation derived from the confidence interval in the same formula, the value on the normal curve for the given point can be obtained. This is not actually a true "probability": it is simply a mathematical value which gets smaller the further away from the central estimate the given point lies. By dividing each such value by the value of the normal function at the central estimate, a new distribution is obtained which has a value of unity at the central estimate and values lower than unity the further the point is from the estimate. In all the models shown below, the numbers in the column labelled "**Relative Value**" are these values.

3. A maximum likelihood estimator has been used which is the product of each of the above values for each year of the simulation. If each predicted value coincided exactly with the population estimate for the year concerned, then the product of all the values would be 1. The less perfect the "fit" then the lower will be the value of all these terms multiplied together. The "**Index**" in the tables below has been derived in this manner and includes a scaling factor.

4. The analysis has been performed by selecting a particular population growth rate and using a computer spreadsheet to iterate the starting population until the highest value of the maximum likelihood index is obtained.

Two analyses are presented here. The first examines the rate of growth for the Matabeleland North population which best fits the eleven years of population estimates. The second assumes that the population cannot grow faster than 5% per annum and introduces a defined amount of immigration from the adjacent Botswana elephant population to obtain the best fit.

1. APPARENT GROWTH RATE OF THE MATABELELAND NORTH POPULATION

Assumed population growth rate: 10.0 %				VALUE OF INDEX: 65.85	
YEAR	Population Estimate	95% Conf. Intervals	Numbers Killed	Predicted Population	Relative Value
1979			314	18,556	
1980	20,524	32	574	19,837	.9780
1981	20,408	18	794	21,027	.9453
1982	25,431	20	60	23,070	.6483
1983	25,701	23	2,083	23,294	.7152
1984	22,184	22	4,140	21,483	.9607
1985	17,980	28	2,474	21,157	.4433
1986	20,481	26	1,259	22,014	.8418
1987	22,954	22	173	24,042	.9114
1988	26,660	26	324	26,123	.9883
1989	27,411	21	* 100	28,635	.9172
1990	32,318	24	* 100	31,398	.9714
1991	38,576	19	* 100	34,438	.5339

* The numbers killed in Matabeleland North during the past 3 years were not available at the time of doing this analysis. However, it is known that they were very low and a value of 100 has been arbitrarily assigned for each of the years concerned.

A population growth rate of 10% per annum best fits the data of the past twelve years of aerial survey. Because of the multiplicative nature of the maximum likelihood estimator the definition of the peak is extremely sharp. In the table below, values of the index are given for various other assumed population growth rates.

GROWTH RATE %p.a.	5.0	6.0	7.0	8.0	9.0	10.0
INDEX VALUE:	0.0009	0.0476	1.054	9.684	37.97	65.85

2. IMMIGRATION INTO THE MATABELELAND NORTH POPULATION

The elephant population of Matabeleland North increases on average at a rate of about 5% per annum*[13,3,14,15]* in the absence of any management to reduce populations. In this analysis it is assumed that the population is incapable of a faster growth rate and that the balance of population growth must be made up of immigration from Botswana. Several assumptions are made:

(a) Management of the Hwange elephant population begun in about 1960. It is assumed that at this time the Botswana elephant population and the Hwange population would have been at about the same density.

(b) The Botswana population is assumed to be a pool which will provide immigrant elephant to the Matabeleland population. It is not necessary to know the numbers in the Botswana population or to assume that this is the entire Botswana population. All that is required is to have a nearby population at a higher density than the Zimbabwe population from which to draw "immigrants".

(c) It is assumed that no immigration takes place into Zimbabwe in any year in which more than 500 elephants are culled from the Zimbabwe population.

(d) It is assumed that the number of elephants which migrate into Zimbabwe in any year in which fewer than 500 elephant are culled is proportional to the number of animals which have been culled in the previous 7 years.

$$\text{i.e.} \qquad I_t = k.\sum_{(t-1)}^{(t-7)} (c_i)$$

where I_t is the number immigrating in year t;
C_i is the number of animals culled in any previous year.

(e) In any given year, the Zimbabwe population increases by 5% and has the numbers culled deducted from it and the number of immigrants added to it:

$$\text{i.e.} \qquad P_t = (1 + r).P_{t-1} + I_t - C_t$$

where P_t is the Zimbabwe population in year t;
r is the rate of growth;
I_t is the number of animals immigrating into Zimbabwe in the year t; and
C_t is the number of animals killed in the year t.

(f) As in the previous analysis, the starting population is iterated until the highest value of the maximum likelihood estimator is obtained. In this case the starting population is that in 1960. Although there are no population estimates from 1960 to 1979, the numbers culled in Zimbabwe are known and this provides the basis for a differential in the Zimbabwe and Botswana populations. After starting in 1960, running up through the years 1960 - 1979, the model is required to give a "best fit" during the years 1980 - 1991.

Assumed population growth rate: 5.0 % VALUE OF INDEX: 69.5
Immigration coefficient: 0.30

YEAR	Aerial Survey Estimate	95% C.I.s	Numbers Killed	Predicted Zimbabwe Population	Immig-ration	Relative Value
1960			97	9,287	0	
1961			158	9,594	29	
1962			161	9,942	77	
1963			116	10,399	125	
1964			111	10,933	160	
1965			267	11,372	193	
1966			140	11,994	273	
1967			473	12,393	315	
1968			286	13,042	428	
1969			168	13,954	466	
1970			173	14,945	468	
1971			1,349	14,811	0	
1972			1,080	14,472	0	
1973			54	15,141	1,101	
1974			786	16,213	0	
1975			460	16,564	1,169	
1976			591	17,970	0	
1977			642	18,226	0	
1978			425	18,713	1,489	
1979			314	20,823	1,211	
1980	20,524	32	574	22,501	0	.8318
1981	20,408	18	794	22,833	0	.4221
1982	25,431	20	60	23,914	1,140	.8363
1983	25,701	23	2,083	24,167	0	.8727
1984	22,184	22	4,140	21,235	0	.9292
1985	17,980	28	2,474	19,823	0	.7606
1986	20,481	26	1,259	19,555	0	.9391
1987	22,954	22	173	20,360	3,415	.5904
1988	26,660	26	324	24,469	3,295	.8222
1989	27,411	21	* 100	28,887	3,154	.8818
1990	32,318	24	* 100	33,386	3,166	.9616
1991	38,576	19	* 100	38,121	2,571	.9924

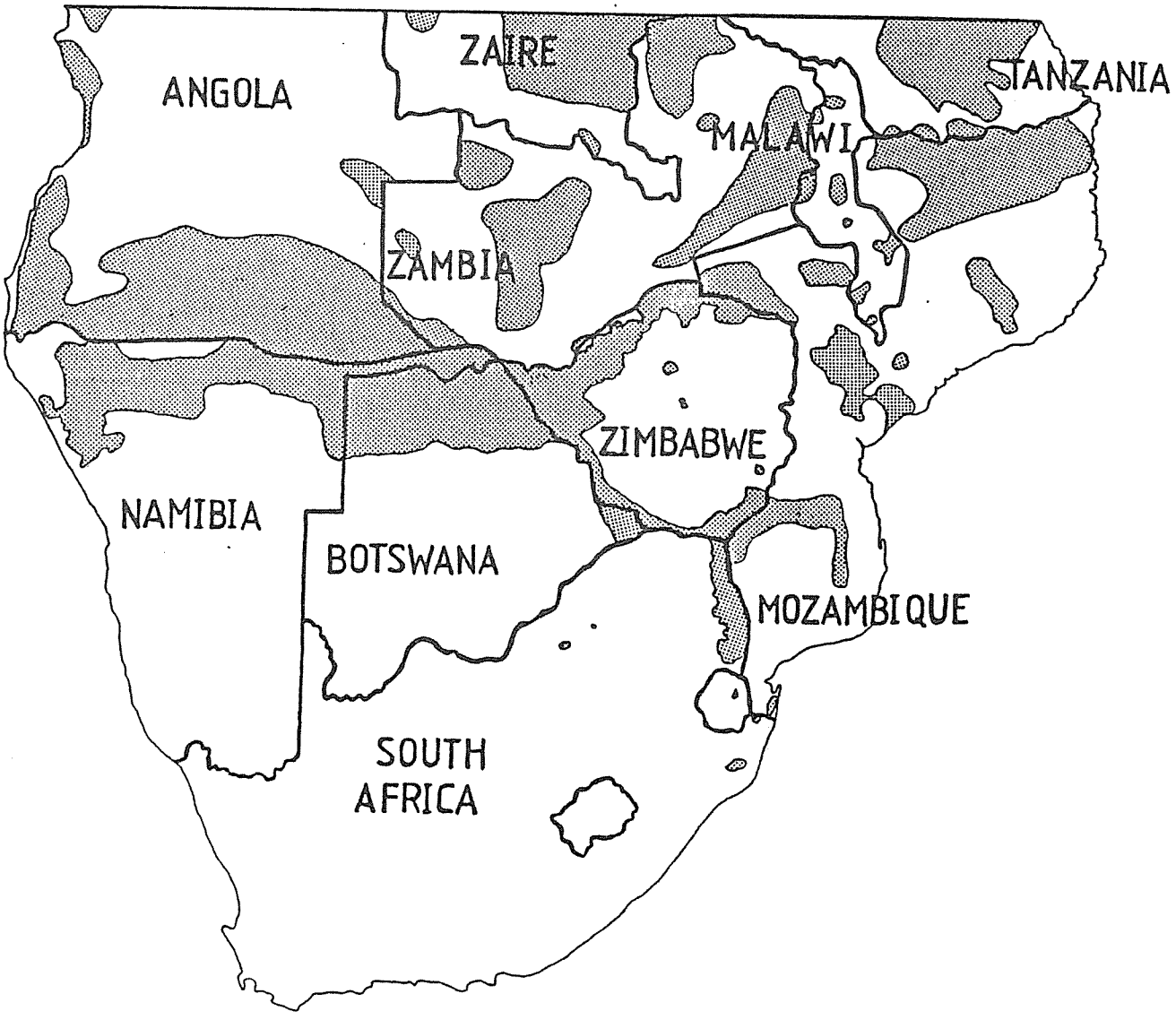
* Estimates

It should be noted that this model provides a slightly better fit to the data than the assumption of a 10% growth rate in the first analysis.

Since major culls ceased in 1987, the model suggests that some 3,000 animals have immigrated into Zimbabwe annually (i.e. about 5% of the northern Botswana population, or an amount equal to the expected annual increment in this population). If this analysis in any way approximates the true situation, it would seem that if culling in Zimbabwe is relaxed for a year or longer rapid immigration immediately replaces the animals removed in previous years. The elephant population in Matabeleland North at the end of 1991 is very nearly what could have been expected if no culling had been done and the population had increased uniformly at a 5% growth rate from some 10 000 animals in 1960.

It is important in considering these simulations of the population to realise that the Zimbabwe population predicted by the model is probably closer to the truth than the actual estimates. The estimates have wide confidence intervals: the predicted population is based on maximum likelihood.

MAP 1: ELEPHANT RANGE IN THE SOUTHERN AFRICAN REGION



SUPPLEMENT TO ORIGINAL PROPOSAL Doc.B2.1.

This supplement was requested by the Panel of Experts constituted in accordance with Resolution Conf. 7.8, who visited Zimbabwe from 12-15 November 1991. It was agreed that each of the 5 southern African countries whose elephant populations are proposed for transfer from Appendix I to Appendix II in Doc. B2.1 should provide such a supplement.

The additional data provided here are in respect of Zimbabwe only and this supplement should be read in conjunction with the original supporting statement in Doc. B2.1. Reference numbers used in the original supporting statement have been retained in this supplement and certain of the Annexes to Doc. B2.1 have been revised and are represented keeping the same Annex numbers. An additional Annex (Annex 7) has been added giving the laws pertaining to control of ivory in Zimbabwe..

2. Biological data

21. Distribution

Historical: The distribution of elephant in Zimbabwe at the turn of the century was much as it is today although numbers were considerably fewer.

Current: The current distribution of elephant in Zimbabwe is shown on the map attached to this supplement which reflects the areas of elephant range listed in Table 1 on page 4. This data supercedes all previous estimates of elephant range in Zimbabwe including that of the African Elephant Data Base project under UNEP in Nairobi.

It is pointed out that there are difficulties in defining the limits of elephant range for many non-enclosed elephant populations. The elephant populations in communal lands and commercial farms in the north-east and south-west of Zimbabwe are low density populations which range over large areas. It is not possible to view the ranges of these populations as central core areas surrounded by areas into which the elephants make occasional forays: it would appear that the elephants are continuously on the move and there is an equal likelihood that they will be found in any part of the indicated range at any time of the year. The criterion which has been used to indicate range on the attached map is "that area in which elephants are likely to be found at least once during an annual cycle".

Queries have been raised about the statement that "the range available to elephant has been steadily increasing in recent years as a result of enlightened land use policies which allow rural people to manage and benefit directly from their elephant populations". In Zimbabwe, this is clarified as follows:

a) The range available to elephant in communal lands can only be expanded slightly in the coming years. This is totally dependent on available habitats and there are now limited areas of additional habitat suitable for elephant remaining in the communal lands of Zimbabwe. However, the numbers within the range can be increased considerably if the resident peoples are prepared to tolerate their presence.

b) The range available for elephant on commercial farms can be expanded considerably. At present there is a high demand for the purchase of elephant to restock commercial farmland throughout the country. The extent to which this will take place in the coming years is linked to status of elephant under CITES: if the species remains on Appendix I, farmers will be reluctant to pay the opportunity costs of introducing elephant to their lands.

22. Populations

Estimates: The current estimates for elephant populations in the Zimbabwe are given in Table 1 on the following page. Since the submission of the original proposal at the end of September 1991, aerial surveys have been completed in Hwange National Park, Deka Safari Area, the Matetsi Complex, Gonarezhou National Park and the Sebungwe. These latest data are shown in Table 1 which now indicates a higher total population (75,000) than that of the original submission in September (68,000).

The Panel of Experts raised the question of possible counting errors in the north-west of Zimbabwe and the north-east of Botswana which may have arisen as a result of movement of elephant between the two countries. Since 1989 both the Botswana and Zimbabwe population have been censussed more or less simultaneously by the same aerial sample survey method in the dry season (August-October) and the results are given in Table 2 below.

Table 2: Dry season elephant estimates for northern Botswana and north-western Zimbabwe

YEAR	BOTSWANA		ZIMBABWE		TOTAL
	ESTIMATE	95% CI	ESTIMATE	95% CI	
1989	59,896	29	27,411	21	87,307
1990	55,835	36	32,318	24	88,153
1991	68,900	29	38,576	21	107,476

The estimate for the combined population of both countries exceeds 85,000 elephant. The estimate for 1991 is higher than ever before in both countries and indicates an overall population increase of some 22% from the 1990 level. Within the typical confidence limits for such surveys, this is not significant. The total population is unlikely to be lower than 80 000 animals. Movement of elephant across the Caprivi Strip (Namibia) may also account for some of the variation.

The Panel of Experts has questioned the statement in the original proposal that the "total population of the region can be considered as a single population". Clearly this should be qualified. Although there are still corridors of natural habitat throughout the region permitting the movement of occasional individual animals between subpopulations to maintain some genetic diversity, the population cannot be regarded as a continuous distribution of effectively interbreeding individuals.

Table 1: ZIMBABWE ELEPHANT POPULATION ESTIMATES - December 1991

No.	Ref	District	Area km^2	Estimate Nos	Density /km^2
		Parks Estate			
1	A	Hwange NP+Deka SA	15,100	31,978	2.12
2	A	Matetsi Complex	4,300	6,598	1.53
3	A	Chizarira NP	1,900	2,544	1.34
4	A	Chete SA	1,100	700	0.64
5	D	Tuli SA	400	300	0.75
6	A	Gonarezhou NP	5,100	6,306	1.24
7	C	Zambezi Valley	11,900	14,400	1.21
8	A	Matusadona NP	1,400	1,234	0.88
9	D	Hartley "A" SA	400	100	0.25
10	D	Doma SA	800	300	0.38
11	A	Chirisa SA	1,700	2,326	1.37
Subtotal:			44,100	66,786	1.51
		Other State Land			
12	F	Forest Areas	8,700	1,000	0.11
13	F	State Farms	2,000	100	0.05
Subtotal:			10,700	1,100	0.10
		Communal lands			
14	E	Ndowoyo	400	400	1.00
15	E	Gaza Khomanani	1,500	600	0.40
16	E	Beit Bridge	400	200	0.50
17	B	Maitengwe	2,000	200	0.10
18	B	Tsholotsho	1,000	300	0.30
19	E	Hwange	1,000	100	0.10
20	B	Binga	2,000	1,400	0.70
21	B	Gokwe	1,000	500	0.50
22	B	Omay	2,700	1,900	0.70
23	E	Kanyati/Gachegache	400	100	0.25
24	E	Mukwichi	1,000	300	0.30
25	B	Dande	3,000	800	0.27
26	E	Remainder	10,000	500	0.05
Subtotal			26,400	7,300	0.28
27	F	Commercial Farms	10,000	1,400	0.14
Subtotal			10,000	1,400	0.14
TOTALS			91,200	76,586	0.84

Notes relating to estimates in Table 1 on previous page:

A - 1991 aerial sample survey estimate.

B - 1990 air survey raised by 1.05 and rounded to nearest 100 to account for one year's increase.

C - 1989 survey raised by 1.103 and rounded to nearest 100 to allow for 2 years' increase.

D - Report by Department staff based on field counts.

E - Estimate based on safari operators' reports.

F - Landholder's report.

(Categories D,E, and F can all be considered guesses)

1. The Hwange population was estimated by Gibson (1989)*[47]* at 23,493 (± 23%), by Jones (1990)*[48]* at 28,729 animals (± 26%) and by Jones (1991 in prep.) at 31,978 (± 22%). The 1991 estimate corresponds closely with the result from the maximum likelihood analysis in Annex 6 to this document.

2. The above population of 75,000 animals is some 30,000 in excess of the desired level of 43,000 elephants (the desired level is a compromise between conservation of habitats and biological diversity and the tourist industry). The Parks and Wild Life Estate can sustain some 33,000 elephants and perhaps a further 10,000 can be accommodated in communal lands, commercial farms and state forests.

   The maximum number of elephants that can be culled annually is about 5,000 (based on practical considerations). The population is continuing to increase at 5% per annum. This means more than 70,000 elephants will have to be removed over the next 13-14 years *in order to reduce the population to the level of 43,000 elephants*.

3. The analysis presented in Annex 6 of the original proposal to assess the level of possible one-directional movement (net immigration) between Botswana and Zimbabwe has been reworked to take into account the latest 1991 surveys for Matabeleland North and appears in Annex 6 to this supplement.

4. It is important to note that all uncorrected estimates derived from aerial survey sample counts are likely to be underestimates. These surveys rely on the assumption that all elephant falling within the transect markers on the aircraft are seen by observers. This assumption is not satisfied: some animals are missed because they are obscured from view (the "invisible" population) and some animals are missed because the observer fails to see them ("observer bias"). Single animals and small groups are missed more often than large groups. Correction factors for these effects are extremely difficult to develop for heterogeneous habitat types and different observers and, where correction factors are not used, it is almost certain that the true number of animals in the population will be higher than the estimate.

Trends: Elephant populations in Zimbabwe increase on average at a rate of about 5% per annum*[12,13,3,14,15]* in the absence of any management to reduce populations. Illegal hunting levels are too low to affect numbers significantly (Table 7, page 12). The rates of increase are deduced from the age-specific fecundities of females taken on culling operations coupled with very low observed mortalities. The results from sequences of air surveys tend to confirm the figure.

The estimates from air surveys of the main elephant populations over the past ten years are given in Table 3 on the following page. The last major culling operations were carried out in 1987 in most areas, and the sequence of surveys since then is not sufficient to indicate any population increase within the confidence intervals of the data. The very large population of Matabeleland North is an exception where the increase exceeds the maximum possible rate of reproduction. This has been analysed in some detail in Annex 1.

23. **Habitat** (trends)

Zimbabwe's objectives for habitat management are to maintain elephant densities in most areas well below 1 animal/km^2 in order to preserve a proportion of mature trees at the same time as creating a diverse habitat suitable for a range of other species. The management authorities for protected areas have considered the option of allowing elephant populations to increase unchecked and to undergo "natural cycles" in relation to woodlands but the risks appear too high from a conservation point of view and the likely outcome of large numbers of elephant dying from starvation is considered socio-economically unacceptable and even less humane than the culling of elephants.

Zimbabwe is increasingly concerned that there is direct competition between elephant and black rhino for browse species in the dry season (e.g. Diplorhyncus condylocarpon, which is the main browse species consumed by rhino). Elephant are also reduce the cover available for rhino and making them more conspicuous to illegal hunters, as happened in Tsavo National Park in the 1960s and 1970s. The present high level of elephant in Zimbabwe is seen as an additional threat to the survival of black rhino.

TABLE 3: AERIAL SURVEY ESTIMATES OF ELEPHANT POPULATIONS 1980 - 1991

YEAR	MATABELELAND NORTH			SEBUNGWE (Binga, Omay, N. Gokwe communal lands included in total)					ZAMBEZI VALLEY	GONAREZHOU NP
	HWANGE NP	MATETSI COMPLEX	TOTAL	CHIZARIRA NP	MATUSADONA NP	CHIRISA SA	CHETE SA	TOTAL		
1980	19 505 (34)	1 019 (49)	20 524 (32)	2 585	1 401 (56)	2 478	825	11 144 (20)	10 872 (22)	4 704 (29)
1981	19 605 (19)	803 (70)	20 408 (18)	1 293	1 908 (81)	1 688	988	8 957 (18)		6 103 (37)
1982	21 728 (21)	3 703 (66)	25 431 (20)	1 672	1 544 (36)	1 848	1 357		12 690 (14)	7 315 (31)
1983	21 668 (25)	4 033 (64)	25 701 (23)	1 101	1 774 (33)	1 490	1 109	9 302 (17)	11 260 (15)	3 986 (25)
1984	19 386 (25)	2 798 (51)	22 184 (22)	1 773	1 283 (48)	2 073	806		9 100	3 937 (35)
1985	15 663 (31)	2 317 (65)	17 980 (28)	2 248	611 (73)	1 632	629			
1986	16 718 (30)	3 763 (48)	20 481 (26)		1 347 (51)				8 121 (17)	4 451 (42)
1987	19 264 (25)	3 690 (50)	22 954 (22)	1 378	627 (53)	623	648		9 069	3 802 (40)
1988	21 590 (32)	5 070 (36)	26 660 (26)	1 758		614	479	7 065 (27)		
1989	23 493 (23)	3 918 (67)	27 411 (21)	3 979	1 523	2 536	1 470	13 290 (23)	13 029 (20)	5 286 (27)
1990	28 729 (26)	3 455 (64)	32 318 (24)							
1991	31 978 (22)	6 598 (41)	38 576 (19)	2 544	1 234	2 326	700			6 306 (38)

Numbers appearing in brackets represent 95% confidence intervals. All 1991 estimates are preliminary pending final reports.

Additional notes on the survey data: All surveys entail line transect sample counts except where indicated.

1. Sebungwe: Block count surveys by Supercub in the following areas:

1980 - MNP highlands
1981 - MNP highlands
1982 - MNP highlands
1983 - MNP highlands
1984 - MNP valley and highlands
1985 - MNP valley and highlands
1986 - MNP valley and highlands
1987 - MNP valley and highlands and certain other highland areas
1988 - Estimate excludes the MNP highlands stratum
1991 - Final report expected in January 1992

2. Gonarezhou: Block counts in 1980, 1982, 1983, 1984, 1986 and 1987.

3. Zambezi Valley

1982 - Additional 1390 elephant in the Chewore mountains (Block count)
1983 - Chewore mountains not surveyed
1984 - Charara and Chewore mountains not surveyed
1985 - Aircraft crashed, survey terminated
1986 - First year (since 1980) when northern side of Zambezi excluded
1987 - Estimate based on strata 3, 4, 6, 6a, 7, 8, and 10 totalling only 46.4% of total area of 11 304 km^2.

3. Trade data

31. National utilisation

The numbers of elephant killed in Zimbabwe since 1960 are given in Table 4 below. The totals include culling, crop protection, tsetse fly control, sport hunting, staff rations, training and illegal hunting. Numbers greater than 1000 animals in any particular year are when major culling operations were carried out to protect vegetation. The largest culls took place in Matabeleland North when the elephant population in Hwange National Park was reduced from an estimated 20,000 animals in 1982 to 13,000 animals in 1986. It is likely that similar heavy culling will be carried out in the same area in the immediate future.

Table 4: The number of elephant killed in various districts of Zimbabwe between 1960 - 1991 (National Parks Records).

Year	Mat North	S. East Lowveld	Zambezi Valley	Sebungwe	*Rest	Total
1960	97	-	182	69	-	348
1961	158	-	85	117	-	360
1962	161	-	87	84	-	332
1963	116	-	134	132	-	382
1964	111	253	273	760	-	1397
1965	267	397	682	558	-	1904
1966	140	261	355	618	-	1374
1967	473	226	92	276	30	1097
1968	286	63	23	204	129	705
1969	168	4	191	169	34	566
1970	173	1	144	35	145	498
1971	1349	665	77	18	7	2116
1972	1080	1129	178	180	34	2601
1973	54	166	213	122	42	597
1974	786	541	179	104	36	1646
1975	460	175	43	1	23	702
1976	591	4	42	15	28	680
1977	642	9	119	-	26	796
1978	425	-	124	28	59	636
1979	314	-	43	16	2	375
1980	574	25	254	450	3	1306
1981	794	-	231	397	4	1426
1982	60	-	1112	51	31	1254
1983	2083	2022	223	20	91	4440
1984	4140	11	665	436	87	5339
1985	2474	13	1054	492	114	4147
1986	1259	1979	39	567	75	3919
1987	173	1050	105	107	90	1525
1988	324	887	1507	49	94	2861
1989	69	79	123	99	33	403
1990	104	56	146	87	26	419
1991	98	41	157	307	21	624
TOTAL	20003	10057	8882	6568	1265	46775

* The category "Rest" includes Matabeleland South, State Forest Areas and "Other" Areas.

1989-1991 figures are provisional

The numbers of elephant killed through culling, problem animal control and sport hunting is shown in Table 5 below, together with the ivory produced. The ivory from sport hunting is exported directly and does not enter the national ivory store. Mean tusk weights are given for local and international sport hunting trophies. It should be noted that a significant proportion of the animals culled do not bear tusks because they are under 24 months of age (15%). The average number of tusks per animal above 24 months is 1.9, allowing for single tuskers and tuskless animals. Animals which are captured and sold from culling operations are included in the culling totals (the percentage is fairly small - about 2%). The mean tusk weights which have been calculated below allow for these factors. The total numbers of animals killed shown in the table below are all slightly lower than the national totals given in Table 4 because illegally killed animals are not included.

Table 5: Utilisation of elephants since 1985 according to activity

YEAR	CULLING		PROBLEM ANIMAL CONTROL		SPORT HUNTING	
	Number	Ivory kg	Number	Ivory kg	Foreign	Local
1985	3,704	17,962	93	2,225	170	33
1986	2,404	11,660	200	2,873	164	34
1987	1,065	6,822	156	3,236	178	25
1988	1,150	5,587	107	3,143	180	23
1989	126	673	86	1,994	188	20
1990	44	224	118	2,701	134	27
1991	266	1,650	85	2,067	150	30
TOTALS	8,215	44,578	845	18,239	1,164	192
MEAN TUSK WEIGHT		3.36		12.26	26.2	24.7

Sales of ivory from 1985 - 1991, both to the local manufacturing industry and for the international trade, are given in Table 6 on the following page. Child and White (1988)*[52]* have described fully the various systems for selling ivory and other elephant products in Zimbabwe. Since 1977 ivory has been sold through public auctions, by tender and, for small amounts, by direct sales from the government ivory store at the prices prevailing after the most recent ivory auction. The last sales by tender were in 1985 and the last public auction was in April 1989.

The local ivory carving industry has been described by Martin (1984)*[53]* and was estimated to be earning some Z$8 million in 1983. Before the listing of elephant on Appendix I of CITES in 1989, some 800 people were employed in the industry (Mavros, pers.comm.). A few of these have been retrenched since 1989 but the industry continues to manufacture and retail ivory products, albeit at a lower level than before, and there has been some diversification into other processed products since 1989.

Sales of live elephant calves and products from culling operations such meat and hides are detailed by Booth (1989)*[54]* for the years 1981-88. Typical annual income from these sources has averaged about Z$1 million.

TABLE 6: IVORY SALES IN ZIMBABWE FROM 1985 - 1991 (A - Auction, T - Tender, S - Direct sales from ivory store)

YEAR	TYPE	IVORY RESTRICTED TO THE ZIMBABWE MARKET			IVORY FOR INTERNATIONAL TRADE			TOTAL SALES		
		TUSKS	WEIGHT kg	VALUE Z$	TUSKS	WEIGHT kg	VALUE Z$	TUSKS	WEIGHT kg	VALUE Z$
1985	A	1,539	3,835	283,122	219	1,627	109,325	1,758	5,462	392,447
	T					4,500	456,017	0	4,500	456,017
	A	642	3,630	469,193	78	510	70,747	720	4,140	539,940
	T					4,200	533,292	0	4,200	533,292
	S		15,456	1,715,323				0	15,456	1,715,323
Subtotal		2,181	22,921	2,467,638	297	10,837	1,169,381	2,478	33,758	3,637,019
1986	A	1,129	4,186	606,970	251	1,489	269,881	1,380	5,675	876,851
	A	398	3,226	690,999	377	2,567	744,156	775	5,793	1,435,155
	S		7,531	211,577				0	7,531	211,577
Subtotal		1,527	14,943	1,509,546	628	4,056	1,014,037	2,155	18,999	2,523,583
1987	A	468	2,882	676,544	304	1,643	432,918	772	4,525	1,109,462
	S		5,848	624,951				0	5,848	624,951
Subtotal		468	8,730	1,301,495	304	1,643	432,918	772	10,373	1,734,413
1988	A	438	2,512	706,249	329	2,004	785,115	767	4,516	1,491,364
	S		3,307	1,313,815				0	3,307	1,313,815
Subtotal		438	5,819	2,020,064	329	2,004	785,115	767	7,823	2,805,179
1989	A	711	2,449	494,601	449	2,168	931,118	1,160	4,617	1,425,719
	S		3,998	692,138				0	3,998	692,138
Subtotal		711	6,447	1,186,739	449	2,168	931,118	1,160	8,615	2,117,857
1990			2,384	367,700				0	2,384	367,700
1991			4,435	819,602				0	4,435	819,602

US$ EXCHANGE RATE and IVORY PRICES IN US$/kg

YEAR	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Z$1 = US$	1.40	1.20	0.97	0.78	0.62	0.59	0.60	0.57	0.50	0.33	0.20
PRICE	65.3	69.4	59.0	68.5	76.9	143.7	158.1	223.3	214.7	(51.9)	(37.0)

Note: No external sales are available to calculate 1990-91 export ivory prices

The Panel of Experts have remarked that the statement on potential ivory production from the southern African countries is rather vague (*"Potential production from the proposing countries is likely to lie between 25 and 50 tonnes per annum depending on management practices in the year concerned"*).

Ivory production from a typical elephant population in a Safari Area in Zimbabwe has been analysed by Martin (1990)*[37]*. The management regime for such a population consists of:

a) culling breeding herds to keep the population constant (4.1%);

b) a sport hunting quota of trophy males (0.7%); and

c) an allowance for males which will be killed as problem animals outside the protected area (0.2%).

The effects of this management on a population of 10,000 animals is shown in Fig. 1 on the following page. The total ivory production is about 5 tonnes, of which sport hunting trophies provide the largest component (2.3 tonnes). The balance of the ivory (2.7 tonnes) from culling, natural mortality and problem animal control is available for commercial trade.

If it is assumed that for every 10,000 elephant in Zimbabwe there would be an annual ivory production of 2.5 tonnes available for trade, the national production from some 75,000 elephant would be 18.75 tonnes. In practice the amount is likely to be higher than this if populations are being reduced to bring them below an assumed carrying capacity of 43,000 animals. This reduction is likely to take place at a rate of 5,000 animals per year which will produce about 20 tonnes of ivory annually. When the population is being maintained at a level of 43,000 animals, the sustainable annual ivory production would be 10-11 tonnes per annum.

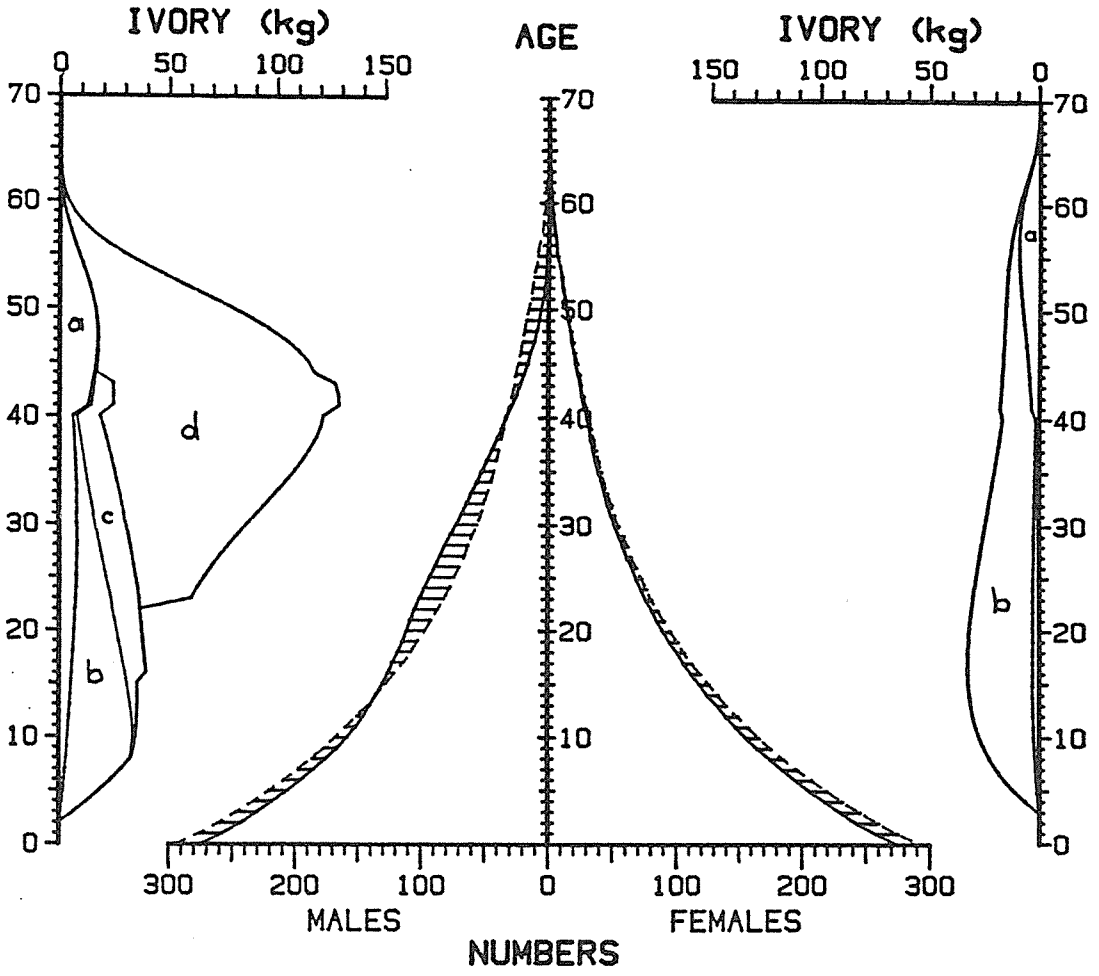
If the five SACIM countries are considered, and if all the countries were managing their elephant identically according to the above regime, a regional population of 150,000 animals would produce 37.5 tonnes of ivory per annum. In practice this extremely unlikely. But it would be surprising, with Botswana and Zimbabwe's stated intention to cull from their elephant populations, if production were lower than 25 tonnes or greater than 50 tonnes in the immediate future.

The stock of ivory in the Zimbabwe government ivory store (which is the only stock of ivory available for trade) was 19,228.27 kg on 18 December 1991. An estimated 2 tonnes still remains on field stations awaiting delivery to the government store.

32. Legal international trade

The amounts of ivory available for international trade from Zimbabwe from 1985-1989 are shown in Table 6. It is necessary to explain that on ivory auction sales from 1985 onwards only a portion of the total ivory offered (20-40%) was permitted to be exported, the bulk being reserved for the local manufacturing industry. In practice, over and above the amount reserved for the local industry, local buyers would usually purchase a small amount of the non-restricted ivory available for the international market. Thus the figures show the maximum amount which was available for international trade but the actual exports are likely to have been lower because of small amounts purchased locally.

Fig. 1: IVORY PRODUCTION FROM A MANAGED POPULATION



———— MANAGED POPULATION: CULL 4.1% CONTROL 0.2% HUNTING 0.7%

- - - - - - - UNMANAGED POPULATION: STABLE AGE STRUCTURE 5.14% GROWTH RATE

			MALES	FEMALES	TOTAL
TOTAL POPULATION			5 182	4 818	10 000
TOTAL ANNUAL MORTALITY		(6.0%)	298	298	596
a	NATURAL MORTALITY	(0.9%)	43	50	93
b	CULLING	(4.1%)	160	248	408
c	CONTROL	(0.2%)	21	0	21
d	SPORT HUNTING	(0.7%)	74	0	74
IVORY PRODUCTION (KG)			3 708	1 259	4 967
	NATURAL MORTALITY	(14.6%)	467	258	725
	CULLING	(32.6%)	617	1 001	1 618
	CONTROL	(7.1%)	351	0	351
	SPORT HUNTING	(45.8%)	2 273	0	2 273
UNMANAGED POPULATION IVORY PRODUCTION			1 083	269	1 352

MEAN TUSK WEIGHT: 4.4 KG

33. Illegal trade

The manpower, budgets and transport available to the Department of National Parks and Wild Life to protect elephant (and other species) is shown in Table 7 on page 14. The total budget of the Department is less than US$8 million and, based on a minimum required expenditure of US$400/km^2 for successful law enforcement, the needed budget is some US$20 million annually. The potential income from elephant products derived from management could make up the shortfall.

Prior to 1984 illegal hunting levels were very low. As numbers of rhino and elephant became depleted in countries to the north of Zimbabwe, large armed gangs began to enter across the northern and north-eastern borders. The record of elephants and rhino killed since 1984 is given in Table 8 on page 15. In the early stages of the "assault", hunting forays were confined to the Zambezi Valley but by 1987 all areas in the north of the country were under pressure. The data in Table 8 indicate that in recent years up to two incursions of armed gangs can be expected on average in every week of the year.

From the data it is clear that extreme measures to curtail illegal hunting have not provided a deterrent. This has caused the Department to move from a philosophy of eradicating illegal hunting to one of detecting illegal hunters as soon as possible after they enter a protected area. The number of animals killed by hunters is directly proportional to the time for which they remain undetected. Once flushed by Department field staff, the gangs leave the protected area as rapidly as possible. To achieve the rapid detection times which are required to minimise the numbers of animals killed, a large number of men in the field are required. Law enforcement staff densities should at least 1 man/50km^2 and preferably closer to 1 man/20km^2. The law enforcement has remained more or less constant since 1984 in terms of available manpower. However, the total time staff are spending on patrols has increased and more sophisticated equipment is being used to detect incursions. A recent injection of an additional 500 men into the Department has also substantially affected the situation.

TABLE 7: RESOURCES AVAILABLE FOR LAW ENFORCEMENT IN PROTECTED AREAS WITH ELEPHANT

LAW ENFORCEMENT FEATURES	MATABELELAND NORTH	SEBUNGWE	ZAMBEZI VALLEY	GONAREZHOU NP	TOTALS
Officers	27	11	19	12	69
Field staff	190	143	190	99	622
TOTAL MANPOWER	217	154	209	111	691
Salaries (approx) Z$ x 1000	5,967	4,234	5,747	3,052	19,000
Operational budget Z$ x 1000	2,512	1,783	2,420	1,285	8,000
TOTAL BUDGET	8,479	6,017	8,167	4,337	27,000
4 Wheel Drive Vehicles	14	10	8	4	36
5 ton Trucks	9	7	5	6	27
TOTAL VEHICLES	23	17	13	10	63
PROTECTED AREA (km^2)	19,400	6,100	11,900	6,100	43,500
Field Staff density (men/km^2)	102	43	63	62	70
Area per vehicle (km^2)	843	359	915	610	690
Total Expenditure (US$/$km^2$)	87	197	137	142	124

NOTES

1. An additional 500 field staff have been recently assigned to the Department, some of whom will be located in the above areas.

TABLE 8: ILLEGAL HUNTING STATISTICS FOR ELEPHANT AND RHINO IN THE MAIN WILDLIFE AREAS OF ZIMBABWE 1984 - 1991

YEAR	MATABELELAND NORTH			SEBUNGWE			ZAMBEZI VALLEY			GONAREZHOU			TOTALS		
	E	R	I	E	R	I	E	R	I	E	R	I	E	R	I
1984					1	1	3	13	10	2	1	2	5	15	13
1985							27	108	50	5	2	3	32	110	53
1986	1	1	1		2	1	17	150	45	6	2	4	24	155	51
1987		2	1		1		9	170	37	30	7	10	39	180	48
1988	8	17	8	3	50	22	14	76	64	823	41	100	848	184	194
1989		17	16	2	57	24	8	50	98	8	5	5	18	129	143
1990	15	18	18	8	61	27	73	37	105	10	1	4	106	117	154
1991	31	17	10	9	56	24	31	27	91	12	0	3	83	100	128
TOTALS	55	72	54	22	228	99	182	631	500	896	59	131	1,155	990	784

Column headings:
E - numbers of elephant killed
R - numbers of rhino killed
I - numbers of incursions of illegal hunting gangs

NOTES

1. Data are provisional (based on Operation Stronghold Report Nov 1991) and require confirmation.
2. Allowance has been made for 823 elephant killed in Gonarezhou NP in 1988 based on Gibson (1989)*[47]*.
3. Similar adjustment has been made for estimated decline in Gonarezhou black rhino population.

34. Potential trade threats

It is considered that the measures detailed in the SACIM Treaty (Annex 4 of the original proposal Doc. B2.1), the measures outlined in the annex to this treaty (Annex 5 of the original proposal) as amended in this supplement, and the legal provisions detailed in Annex 7 to this supplement provide adequate safeguards against the possibility that the trade in ivory in southern Africa will prejudice elephant populations in other parts of Africa.

4. Protection status

41. National

In Zimbabwe, the Department of National Parks and Wild life Management within the Ministry of Environment and Tourism has overall responsibility for the protection and conservation of elephant throughout the country. The Department provides the law enforcement staff to prevent illegal hunting in protected areas, takes all management decisions for elephant in protected areas, issues all import and export permits for elephant products, monitors and regulates the domestic ivory carving industry, and controls all raw ivory sales from Zimbabwe through the government ivory store.

It is important to point out that elephant outside of protected areas fall under the immediate control of the appropriate authority for land concerned. Thus, landholders of commercial farms and District Councils in communal lands have the right to exploit elephant in accordance with the laws for all wildlife which is not Specially Protected in Zimbabwe. It is considered that this process of empowerment of rural peoples to manage and benefit from the wildlife on their land is the single greatest factor accounting for the continuous increase in populations of most large mammal species throughout the country. Should these rights be withdrawn, or the elephant be declared a Specially Protected Species, it is to be expected that the decline of elephant populations outside protected areas would be rapid.

The laws and regulations pertaining to control of ivory in Zimbabwe are given in Annex 7 of this supplement.

42. International

The species is listed on Appendix I of CITES. Botswana, Malawi, Namibia, Zambia and Zimbabwe have entered reservations against this listing. In accordance with Resolution Conf. 4.25 these Parties are continuing to regard the elephant as if it were listed on Appendix II. However, it is noted that Article XV(3) of the Convention provides for Parties entering reservations to be treated as States not Parties to the Convention with respect to trade in specimens of the species concerned. The species is also protected under the Africa Convention.

5. Information on similar species

It is seen as unlikely that this proposal to list the species in southern africa on Appendix II will prejudice the survival of those other species populations of the African elephant which are listed on Appendix I of CITES. The trade controls advanced in section 3 are considered sufficiently rigorous to exclude any elephant ivory at the point of export. The measures referred to in Annex 5 for identifying the origin of ivory*[50]* can also be applied by an importing state to detect any illegal ivory mixed with the southern African ivory.

6. Comments from countries of origin

No additional comments have been obtained.

7. Additional remarks

In the preparation of this supplement, we have been aware that the comments from the Panel of experts are designed to assist Zimbabwe in satisfying the likely demands of the Parties to CITES for adequate information. Nevertheless we are concerned, as a result of the Panel's comments, that we may not share common perceptions of the manner in which CITES should be implemented. We wish to address some of the more general issues which appear to be inadequately covered by the terms of reference of the Panel of Experts:

1. The demands for increasing amounts of data and greater research inputs before utilisation of a species can be contemplated are becoming a feature of the CITES forum. There is a growing syndrome that unless there is a major research effort prior to proposing the use of a species, then that use cannot take place.

2. This is totally contrary to the approach Zimbabwe takes towards its wildlife - that of adaptive management. It is only by using a species and monitoring its use that the necessary information for better management can be obtained. We view research and management as inseparable components - not serial processes where the one follows the other.

3. The above is particularly relevant to the preoccupation with the precision of estimates of population numbers. There are increasing demands for greater accuracy in a biological arena where the confidence intervals on surveys are not better than plus or minus one-third of the total population. Furthermore, species can often be used and managed without ever knowing the absolute number of animals in the population.

4. We are concerned at the costs now associated with the preparation and submission of proposals to CITES. Very often these costs are unrelated to the real issues of species conservation and they greatly exceed what can be regarded as essential for species management. These costs have to be seen in the context of third-world budgets for conservation and, as such, they become opportunity costs. The question has to be asked "on what alternative conservation uses could this money have been spent?"

5. The tenet of the old moral philosophers - "*abusus non tollit usum*" (the abuse of a thing does not debar its use) - should be applied to the case in question. The fact that elephant have been abused in some parts of Africa does not automatically mean that all elephant should be barred from sustainable utilisation.

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ANNEXES IN THE ORIGINAL PROPOSAL Doc. B2.1

ANNEX 1: Individual country estimates of elephant populations.

This annex will effectively be replaced by the supplements from individual countries requested by the Panel of Experts.

ANNEX 2: Human populations in the region

This remains unaltered and is not included in the supplement

ANNEX 3: Sources of Zimbabwe ivory production 1985-1991

This remains unaltered and is not included in the supplement

ANNEX 4: Agreement for the establishment of the Southern African Centre for ivory marketing

This remains unaltered and is not included in the supplement

ANNEX 5: Marketing and control system to be implemented by SACIM

This has been amended

ANNEX 6: Maximum likelihood analysis of the elephant population estimates for Matabeleland North, Zimbabwe

This has been amended and is attached

ANNEX 7: Laws and regulations pertaining to ivory in Zimbabwe

This is a new annex not in the original proposal

ANNEX 5

MARKETING AND CONTROL SYSTEM

to be implemented by

THE SOUTHERN AFRICAN CENTRE FOR IVORY MARKETING

PREAMBLE

The Agreement for the Southern African Centre for Ivory Marketing was signed in Lilongwe, Malawi, on 20th June 1991. This Annex to the treaty is a draft technical manual specifying the systems to be adopted to achieve the objects of control and marketing of ivory and other elephant products. The document is based upon the SACIM States original submission to CITES at the Lausanne meeting in 1989 and its contents were provisionally agreed at the last meeting of the Board of Directors of SACIM in August 1991. The final text will be put before the SACIM Board for adoption before the next meeting of the Parties to CITES in March 1992. The system may be altered from time to time by the Board of Management to give greater effect to its objectives (Article V(2) of Treaty) or to include other wildlife products (Article XVIII of Treaty). Some of the provisions in this manual have already been included in the treaty and where this is the case it is noted.

OBJECTIVES

These are fully defined in Article III of the treaty. An additional long-term objective is to strengthen local manufacturing industries and increase value-added production before export.

MECHANISMS

A. CONSERVATION CONTROLS ON MEMBER STATES

1. Elephant populations of member countries will be monitored regularly by appropriate survey techniques (Article IV(c)).

2. The Board of the Centre will make recommendations to members on optimum elephant populations (Articles III(g) & III(h)).

3. All members will provide to the Centre any data pertaining to management and research on elephants and elephant products within their countries (Article IV(a)).

4. Members will take note of advice given by the Centre on conservation and management of elephants and elephant habitats (Article IV(b)).

5. The Board will establish and review annually maximum ivory production limits for each country, taking into account the following:

   (a) Quotas will normally be based on the maximum sustained yield from the total elephant population in a member State. This will be calculated on a simple basis of 0,5 tonnes of ivory per 1 000 elephant.

   (b) Where a member State intends to reduce its elephant population, its quota may be adjusted to include the increased amount of ivory.

(c) Member States will declare their existing stocks of ivory at the time the Centre becomes operational and may thereafter include in their quotas all or any of this initial stock. Member States will be required to justify the origins of the initial stock and if it includes any Appendix I ivory this will be subject to the provisions of Section 12 of this document.

(d) Quotas will take into account hunting trophies and ivory consumed locally in member States which, although not marketed through the Centre, will be accounted for in the records of the Centre.

These quotas will be regarded as overall "production limits". It is not expected that any member State will manage its elephant for maximum ivory production and so it is not expected that production will ever approach the biological ceilings, except where populations are deliberately being reduced. However, the quotas are included as an overall conservation control (Article IV(h)).

It is important to understand that, unlike the previous quota system of CITES, which attempted to predict the annual production of ivory, this system will tend rather to make its member States account for all ivory brought to the market place. The SACIM States do not believe that it will benefit elephant conservation to prevent member States from bringing ivory to the Centre for marketing: rather, they should bring such ivory and explain how it was obtained. Should it arise from unsound management, this will then be addressed through a joint approach of the SACIM Board of Directors using the provisions of paragraphs A.3. and A.4. above. In the extreme case that a member of SACIM fails to heed the advice of the Board, expulsion would be considered.

B. TRADE CONTROLS ON MEMBER STATES

In the following paragraphs, the use of the term "member State" refers to both the government or the citizens of the State.

1. No member State will import of raw ivory or unprocessed elephant products from any other country (Article IV(f)).

2. No member State will import worked ivory or processed elephant products from any country which is not a member state.

3. No member State will export raw ivory, with the exception of hunting trophies, or unprocessed elephant products except through the Centre (Article IV(d)).

4. The government ivory store in each member State will be the only legal repository for raw ivory which can be exported commercially.

5. All tusks entering the government ivory stores will be registered and marked in accordance with CITES procedures.

6. Only approved resident manufacturers in member States will be allowed to purchase raw ivory from their government store.

7. Member States will examine their measures for controlling internal trade to ensure that adequate controls and recording systems are in place for all raw ivory and worked ivory in their countries.

8. All member States will designate an officer responsible for ivory matters including;

(a) Responsibility for the government ivory store;

(b) Maintenance of a register for raw ivory, which includes the following details of each tusk entering the store;

i) Date of acquisition;
ii) Locality from which tusk obtained;
iii) Cause of death of the elephant;
iv) Weight and length of tusk;

(c) The marking of all tusks according to the provisions of paragraph B.5;

(d) Submission of records to the Centre including details of tusks exported as hunting trophies and all ivory purchases by local manufacturers.

(Article IV(i))

9. All member States will prohibit private dealing in raw ivory. (Article IV(l)).

10. All member States will endeavour to standardise penalties within the region for illegal hunting and trafficking in elephant products (Article IV(m)) and increase these when necessary.

11. Member States will abide by the following procedures for confiscated ivory:

(a) Any significant amount of confiscated ivory will be tested by the method of isotopic analysis*[50]* to determine its area of origin.

(b) Ivory originating from within the member State's country (i.e. from its own elephant population) may be added automatically to the member State's quota. If persistent large amounts of such ivory are brought to SACIM for marketing, the Board of Directors will review the situation.

(c) Ivory which originates from other member States and non-member States whose elephant populations are listed on Appendix II of CITES will be treated as follows;

i) Members may include up to one tonne of such ivory in their annual quota;

ii) Amounts exceeding one tonne may not be accumulated in any State beyond the financial year of the Centre, but will be transported to the Centre for sale;

iii) Amounts exceeding one tonne will be sold by the Centre and the proceeds deposited in the Elephant Conservation Fund of the Centre for use as directed by the Board.

iv) A percentage (to be fixed by the Board) of the value of any confiscated ivory falling in category (iii) above will be credited to the member State responsible for the confiscation prior to the balance being deposited in the Conservation Fund.

v) No member State will have any claim on confiscated ivory which it believes to have originated from its country.

(d) Ivory which originates from non-member States with elephant populations listed on Appendix I of CITES will be securely stored in the SACIM Centre or in one of the member States' facilities and will be referred to the Conference of the Parties regarding its disposal.

C. TRADE CONTROLS EXERCISED BY THE SACIM CENTRE

1. Ivory will be exported from SACIM only to those nations who can demonstrate that their laws, controls and administration are adequate to prevent any SACIM trade being used as a conduit for trade in non-SACIM ivory.

2. All purchasers of ivory from the Centre must be approved and registered manufacturers in their respective countries, or approved and registered manufacturers' trade associations. Certificates to this effect must be provided, bearing the seals of the national Management Authority of their country of residence.

3. All purchasers of ivory from the Centre must sign an agreement not to purchase from any other sources. In the event that it is found that this agreement is not being honoured the Board will debar the purchaser from further purchases.

4. Only whole tusks will be exported. A whole tusk is defined as a tusk containing the tip of the pulp cavity.

5. The Centre will issue unique export certificates printed on security paper. Importing countries must insist upon both a national permit and the SACIM certificate before allowing importation. An additional SACIM security tag may be affixed to each tusk.

ANNEX 7

GOVERNMENT OF ZIMBABWE LEGISLATION PERTAINING TO CONTROL OF IVORY extracted from the PARKS AND WILD LIFE ACT 1975 (as amended August 1991) and the PARKS AND WILD LIFE (General) REGULATIONS (Statutory Instrument 362 of 1990)

(4) Any person who is guilty of an offence referred to in subsection (3) of section *sixty-one* or subsection (3) of section *sixty-two* shall be liable, where the offence is not one such as is referred to in subsection (4a)—

(a) on a first conviction, to a fine not exceeding four thousand dollars or to imprisonment for a period not exceeding four years or to both such fine and such imprisonment;

(b) on a second or subsequent conviction, to a fine not exceeding eight thousand dollars or to imprisonment for a period not exceeding eight years or to both such fine and such imprisonment.

Subsection inserted by section 2 of Act No. 11 of 1984 and as substituted by section 18 of Act No. 35 of 1985:

(4a) Notwithstanding any other provision of this section, any person who is guilty of an offence under this Act involving—

(a) the unlawful killing or hunting of a rhinoceros, or any other specially protected animal specified by the Minister by notice in the *Gazette*; or

(b) the unlawful possession of, or trading in, ivory or any trophy of a rhinoceros or of any other specially protected animal that may be specified by the Minister by notice in the *Gazette*;

shall be liable—

(i) on a first conviction, to imprisonment for a period of not less than five years or more than fifteen years;

(ii) on a second or subsequent conviction, to imprisonment for a period of not less than seven years or more than fifteen years:

Provided that where on conviction the convicted person satisfies the court that there are special circumstances in the particular case justifying the imposition of a lesser penalty, the facts of which shall be recorded by the court, the convicted person shall be liable to a fine not exceeding fifteen thousand dollars or to imprisonment for a period not exceeding ten years or to both such fine and such imprisonment.

Subsection inserted by section 18 of Act No. 35 of 1985 and as substituted by section 2 of Act No. 1 of 1990.

IVORY AND HORN

Appointment of specified officers

76. The persons occupying the posts listed in Part I of the Seventh Schedule are hereby appointed as specified officers for the purposes of sections 77, 78 and 79.

Ivory and horn to be registered

77. (1) Any person who—

(a) acquires or comes into possession of any unregistered raw ivory or horn shall, within fifteen days of such acquisition or coming into possession; or

(b) imports into Zimbabwe any unregistered raw ivory or horn shall, within twenty-four hours of such importation;

produce the ivory or horn to a specified officer for registration.

(2) A specified officer shall require evidence that any ivory or horn has been lawfully acquired or imported or is lawfully possessed, as the case may be, by the person seeking to have it registered.

(3) after satisfying himself as to the matters referred to in subsection (2), the specified officer shall register the ivory or horn, and shall—

(a) cause it to be marked with a distinctive mark as provided in Part II of the Seventh Schedule; and

(b) issue a certificate of ownership in the form prescribed in the Eighth Schedule.

(4) The specified officer shall record in a register such information as may be required of any ivory or horn which he has registered.

Retention of ivory and horn

78. If evidence required in terms of subsection (2) of section 77 is not produced, the specified officer shall retain the ivory or horn pending the production of such evidence as he may require.

Disposal of retained ivory and horn

79. (1) If, within six months after the date on which ivory or horn was retained in terms of section 78, the evidence required in terms of subsection (2) of section 77 has not been produced, the ivory or horn concerned shall be registered as a State trophy.

(2) Where a person is convicted of any offence in respect of ivory or horn, such ivory or horn shall, unless any other person owns or is entitled to possess it, thereupon become a State trophy.

(3) If no person claims ivory or horn retained in terms of section 78 within one month from the date on which he first becomes entitled to claim it in terms of subsection (2), the Director may give notice in the *Gazette* that, unless the ivory or horn is claimed by a person entitled thereto within a period of two months from the date of publication of the notice, the ivory or horn will be disposed of in terms of subsection (4).

(4) If, on the expiry of the period of two months from the date of publication of a notice referred to in subsection (3), the ivory or horn concerned has not been claimed by a person entitled thereto, it shall become a State trophy.

Marking of manufactured ivory

80. (1) Subject to subsection (5), every holder of an ivory manufacturer's licence who processes, carves, embellishes or otherwise manufactures ivory to produce an article exceeding two hundred grams in mass of ivory shall engrave upon the article, in such a manner as to form a clear depression below the normal surface of the ivory, the following particulars—

(a) the number of the register in which he has entered a description of the article concerned; and

(b) the identifying letters that have been registered in his name in terms of subsection (4).

(2) No person shall alter, deface or remove any engraving referred to in subsection (1) without the written permission of the Director.

(3) Every holder of any ivory manufacturer's licence shall apply to the Director for the registration of his initials or other

identifying letters which he wishes to engrave upon ivory in terms of paragraph (b) of subsection (1).

(4) On receipt of an application in terms of subsection (3), the Director—

(a) may refuse to register the identifying letters concerned if in his opinion they are indecent or so similar to any such letters previously registered as to be likely to cause confusion;

(b) in any other case, shall register the identifying letters concerned in a register to be kept by him for the purpose and shall notify the applicant in writing accordingly.

(5) Where, on the 19th December, 1986, a holder of an ivory manufacturer's licence was in possession of an ivory article exceeding two hundred grams in mass which he had processed, carved, embellished or otherwise manufactured before that date, he may, instead of engraving the article in the manner prescribed in subsection (1), mark the article in indelible ink with the particulars specified in that subsection, in such a manner as will reasonably ensure that the marks cannot be erased.

(6) These regulations shall apply to any article marked in terms of subsection (5), and to the marks thereon, as if the article had been engraved in terms of subsection (1).

Sale or transfer of registered raw ivory

81 (1) Upon the sale or transfer of any registered raw ivory, the person disposing of it shall immediately endorse upon the certificate of ownership the name and address of the person to whom the sale or transfer has been effected, and shall sign and date such endorsement.

(2) Should any registered raw ivory be lost, stolen, exported, processed, embellished, manufactured or destroyed, the owner of the ivory shall, within fourteen days, return to the Director the certificate of ownership relating to the ivory, together with details of its loss, theft, export, process, embellishment, manufacture or destruction, as the case may be.

Restriction on acquisition, possession, sale or transfer of unregistered or unmarked ivory

82. (1) Subject to section 85, no person shall acquire, have in his possession, sell or transfer any raw ivory that has not been registered unless the raw ivory—

(a) was lawfully taken from an animal that was lawfully hunted in terms of the Act; or

(b) was lawfully taken from an animal that died on any land for which that person is the appropriate authority; or

(c) has been lawfully imported into Zimbabwe;

and the period within which that person is required to produce the raw ivory for registration in terms of section 77 has not elapsed.

(2) Subject to subsection (5) of section 80 and to section 85, no person shall acquire, have in his possession, sell or transfer any piece of manufactured ivory which exceeds two hundred grams in mass unless such ivory is marked ivory.

(3) In any prosecution arising out of a contravention of subsection (1), the burden of proving—

(a) any fact referred to in paragraph (a), (b) or (c) of that subsection; and

(b) that the period referred to in that subsection has not elapsed;

shall rest on the accused.

Sale or manufacture of horn prohibited

83. No person shall purchase, sell, manufacture, process, carve or embellish any horn.

Acquisition, possession or transfer of horn

84. (1) Subject to section 85, no person shall acquire, have in his possession or transfer any horn which has not been registered.

(2) Upon the transfer of any registered horn, the person trasferring such horn shall immediately endorse on the certificate of ownership—

(a) the name and address of the person to whom the transfer has been effected; and

(b) sign and date such endorsement.

(3) Should any horn be lost, stolen, exported or destroyed, the owner shall, within fourteen days thereof, return to the Director the certificate of ownership, together with details of such loss, theft, export or destruction, as the case may be.

Exemptions

85. (1) Sections 77, 82 and subsection (1) of section 84 shall not apply in respect of the acquisition or possession of ivory or horn by any museum or scientific or educational institution, where such ivory or horn is *bona fide* acquired or possessed for the purposes of the museum or for scientific or educational purposes.

(2) Sections 77, 82 and subsection (1) of section 84 shall not apply in relation to the acquisition, possession, sale or transfer of any ivory or horn by any person in the lawful execution of his duties on behalf of the State.

(3) Section 82 shall not apply in respect of the acquisition or possession of—

(a) any unregistered ivory by any person in accordance with an authority granted to him by the Director; or

(b) any marked ivory that has been lawfully imported into Zimbabwe after being manufactured outside Zimbabwe; or

(c) any marked ivory that was manufactured prior to the 19th December, 1986.

(4) In any prosecution arising out of a contravention of section 77, 82 or subsection (1) of section 84, the burden of proving that he was entitled to an exemption in terms of this section shall rest on the person claiming such exemption.

RANGE OF THE AFRICAN ELEPHANT IN ZIMBABWE