AMENDMENTS TO APPENDICES I AND II OF THE CONVENTION

Other Proposals

A. PROPOSAL

Transfer of the Zimbabwe population of Diceros bicornis from Appendix I to Appendix II. (see footnote)

B. PROPONENT

Zimbabwe.

C. 1. Taxonomy

11. Class: Mammalia

12. Order: Perissodactyla

13. Family: Rhinocerotidae

14. Species: Diceros bicornis (Linnaeus, 1758)

Subspecies: Diceros bicornis minor (Drummond, 1876)

The status of subspecies of the black rhino is not satisfactorily resolved. Smithers*[1]* questions the validity of any subdivisions in the southern African region. The African Elephant and Rhino Specialist Group*[2]* recognises four regional units, two of which occur in southern Africa: the south-western populations in Namibia and the Cape Province (D. b. bicornis) and the southern-central populations extending from Natal through to Zimbabwe, Zambia and into southern Tanzania (D.b. minor). Harley*[3]*, in examining DNA in tissues from both "subspecies", found no striking differences.

15. Common names:

English:	black rhino
French:	Rhinocéros noir
Spanish:	Rinoceronte negro
	Rinoceronte de labio ganchudo
German:	Spitzmaulnashorn
	Schwarzes Nashorn
Portuguese:	Rinoceronte negro

16. Code numbers: CITES A-118.003.003.001
ISIS 5301418003002001001

Footnote: Zimbabwe's preferred proposal is for a quota for commercial trade in rhino horn and sport hunting trophies on Appendix I. However, this requires prior acceptance of the draft resolution in document *Doc. 8.50*. In the event that this draft resolution is accepted, this proposal can be amended to permit a quota for Appendix-I trade.

2. Biological Data

21. Distribution: *Historical:* Black rhino were widespread throughout Africa 200 years ago, according to reports from early travellers. Major declines started in the 19th century when West African populations were eliminated and populations elsewhere in Africa were reduced, particularly in southern Africa. Some recovery took place during the 20th century under strict protection in numerous conservation areas but, in the last 30 years, the continental population of some 70,000 animals has been reduced to less than 4,000 *[2, p4].*

Current: The present population of wild black rhino survives almost entirely in Namibia, South Africa and Zimbabwe. Kenya has some 400 animals in heavily protected, small fenced sanctuaries and there are thought to be surviving pockets of black rhino in Cameroon, the United Republic of Tanzania, Zambia and Malawi. By the standards of the Mace-Lande Criteria for Threatened Taxa*[4]*, these populations would be ranked as "Critical" and, even if satisfactorily protected, their viability on genetic, demographic and environmental grounds would be precarious.

Black rhino survive in Zimbabwe throughout the north of the country in both state protected areas and communal lands. The total range of rhino in Zimbabwe is about 45,000 km^2. The present populations in Hwange National Park and Gonarezhou National Park were established in the 1970s and 1980s by translocation from other parts of the country. All of the large wild populations are on the periphery of the country (Map 1), making them extremely vulnerable to illegal hunters from outside the national borders. Rhino have also been translocated into breeding nuclei in five conservancies, each consisting of several consolidated commercial farms, which are located more centrally within the country where they exist under wild conditions. A national captive-breeding centre has been established near Harare and a secondary captive-breeding centre is at Chipangali near Bulawayo.

Rhino are presently being translocated from the most vulnerable areas to establish populations in other state protected areas and in new conservancies. A founder population of 40 animals is being provided for an *ex-situ* captive-breeding programme to be managed under the overall direction of the IUCN Captive Breeding Specialist Group.

More detailed plans for the redistribution of black rhino in Zimbabwe are contained in the National Conservation Strategy for Black Rhinoceros*[5]* and a paraphrased version of this document appears as Annex 1.

22. Population

Estimates: Rhino are extremely difficult to count. Aerial survey census techniques which are appropriate for elephant may underestimate black rhino by a factor of as much as 5. The estimates presented below are based partly on aerial survey and partly on local knowledge. Detailed ground surveys have been carried out recently in two areas and the resulting numbers were approximately double the previous estimates (the table below has not be modified to take this into account). The air survey data shown below are those for the 1989 survey.

AREA	Air Survey	ESTIMATE
Zambezi Valley	467	700
Chizarira National Park	247	300
Hwange National Park	90	200
Chirisa Safari Area	140	200
Matusadona National Park		150
Chete Safari Area	57	100
Doma Safari Area	50	
Commercial farms	150	
Communal lands	150	
TOTALS		**2,000**

Notes:

1. The Gonarezhou National Park population which was established in the 1970s reached a peak of about 70 animals in the mid-1980s and has since been reduced to less than 10 animals.

2. The populations of Chizarira National Park and Chirisa Safari Area have recently be subjected to heavy illegal hunting pressure and may be considerably reduced from the given figure.

3. The numbers on commercial farms may have increased significantly following two seasons of successful breeding with very few mortalities.

Trends: Owing to the lack of a series of accurate estimates for the total rhino population, it is difficult to make a statement about overall trends in numbers. In 1988 a detailed study was carried out in the Zambezi Valley*[6]* which arrived at the following estimates for the Lower Zambezi Valley population over the period from the inception of major illegal hunting in late 1984 until 1988. The estimates for 1989-1991 are based on an assumed rate of growth of 6% for the population, less the numbers of animals killed and captured each year. Since 1984 a minimum of 600 animals have been killed in the Valley and 320 have been translocated to other areas.

TRENDS IN THE RHINO POPULATION IN THE LOWER ZAMBEZI VALLEY								
YEAR	1984	1985	1986	1987	1988	1989	1990	1991
ESTIMATE	1,150	1,200	1,150	1,000	800	750	750	700

This should not be taken as representative of the total rhino population. Until 1987 very little illegal hunting had taken place elsewhere in Zimbabwe. Since 1987, illegal hunting has spread to the entire northern region of the country and no rhino population is unaffected. A general assessment of the situation is that during the period 1984-1987 the Zambezi Valley population declined by at least 400 animals but has stabilised in the past 4 years with reproduction roughly balancing the illegal offtake. In the remainder of the country, illegal hunting caused a sharp decline in the years 1987-88, was temporarily contained in 1989-90, and has again taken a sharp toll in 1991. The population is probably declining at the moment or, at best, maintaining a balance with illegal offtake.

23. Habitat: The increase in the elephant population is seen as the only habitat consideration likely to affect rhino adversely. Black rhino and elephant compete for the same dry season browse species (particularly Diplorhynchus condylocarpon) and it is possible that the elephant could reduce carrying capacity for black rhino.

Attention should be drawn to the fact that Zimbabwe carries a substantial rhino population outside its state protected areas in the communal lands where there is good habitat for the species. Increase in human populations or immigration into remote areas could cause a reduction of available habitat for rhino unless there were a strong incentive to retain them.

3. Trade data

31. National Utilization: There is no legal utilization of black rhino in Zimbabwe. The numbers killed by illegal hunters are estimated below:

NUMBERS OF BLACK RHINO KILLED IN ZIMBABWE								
YEAR	1984	1985	1986	1987	1988	1989	1990	1991
ESTIMATE	* 19	* 96	* 135	150	64	44	64	100

* - all killed in the Zambezi Valley

The figures for 1991 are not yet complete and could be higher than indicated. Chizarira National Park has suffered a large number of incursions.

Zimbabwe has started removing horns from all animals translocated to establish new populations and from certain small discrete populations. Horn is collected from natural mortality, from intraspecific fighting and from rhino which knocked off their horns in the course of translocation. The present stock of rhino horns is over 2 tonnes.

32. Legal International Trade: There is no legal international trade. The Appendix I listing of all rhinoceros species has been in place since the inception of the Convention. However, it has been totally ineffectual. Perhaps it was naive to believe it could ever have been otherwise: rhino horn is easy to move and smuggle and a doubling of world law enforcement effort would not change the situation. If a committed government cannot prevent rhinos being killed illegally, despite the expenditure of over US$200/km^2 per annum and a "shoot-to-kill" policy for illegal hunters, by the same token it cannot prevent the illegal movement of the product.

Namibia, South Africa and Zimbabwe seek to trade horn internationally. The trade would be conducted according to the highest standards, perhaps at a government-to-government level. The Southern African Centre for Ivory Marketing may prove to be a suitable, single outlet for such trade in that all stocks would be fully accounted for and transactions would be open to international scrutiny. All three states are amenable to suggestions from the Conference of the Parties in respect of the necessary controls to be applied to ensure that such trade will not threaten already precarious rhino populations. Zimbabwe's preference is for a quota for commercial trade in Appendix I, since this continues to reflect the endangered status of the species. Although there is no precedent for this under present quota systems it requires only approval

of a resolution by the Conference of the Parties (draft resolution in document *Doc. 8.50* provides for a quota system in Appendix I covering commercial trade, sport hunting and captive breeding operations).

33. Illegal Trade: The previous paragraph refers. In the past 7 years about 1,300 horns have been illegally exported from Zimbabwe (allowing for two horns per animal and taking into account a limited recovery by law enforcement staff). This would amount to 2-3 tonnes of horn with a value of US$6 million on the international market.

34. Potential Trade Threats: The trade threat to rhino is actual - not potential. There is a real market demand for the product based on centuries of its use in traditional medicines in the Far East*[7]* and recent data suggest it may be efficacious*[8]*.

The world demand is estimated at about 5 tonnes per annum and the sustainable yield from Africa is far lower than this (less than 1 tonne per annum). The question to be asked is whether it would be better to recognize this market, which is well established and has persisted for centuries, and to provide a limited supply of legal horn to it or whether to continue with the present unworkable trade ban which threatens the survival of the species.

341. Live Specimens: There is no significant threat from sale of live specimens. Recently the Natal Parks Board in South Africa auctioned 5 black rhino and received US$750,000 for them (about US$150,000 each). These funds will greatly assist conservation in Natal.

342. Parts and Derivatives: The major trade product is the horn of rhino but Bradley-Martin*[9]* has detailed the other parts and derivatives which are in demand. These include skin, organs and tissues.

4. Protection Status

41. National: The species is Specially Protected in Zimbabwe which is the maximum legal protection it can be accorded. Penalties for illegal hunting or trafficking in rhino horns include jail sentences of up to 15 years and fines of up to Z$15,000. Law enforcement staff are indemnified against legal proceedings for killing rhino poachers - so that illegal hunting of rhino may effectively carry the death sentence. None of this has prevented the illegal killing of nearly 1,000 rhinos.

42. International: The species is listed in Appendix I of CITES and few countries in their domestic legislation permit the import of rhino horn.

43. Additional protection needs: Rhino cannot be protected through legislation. A study of the illegal hunting in the Zambezi Valley*[6]* indicates the following:

a) There has been no deterrent effect from the killing of 200 illegal hunters who have entered Zimbabwe from outside its borders.

b) There is an infinite supply of illegal hunters. The rate of incursions into Zimbabwe has remained constant or is increasing, despite a massive law enforcement effort. Approximately one incursion of a large gang, heavily armed with automatic weapons, occurs in every week of the year. In 1991, more gangs may have entered the country.

c) Given that there is no deterrent, law enforcement agencies can only influence the time taken to detect illegal hunters. The number of rhino killed in any given time is a function of the number of gangs entering an area with rhino, the number of weapons they carry, their potential killing rate (which is related to rhino density) and the number of days for which they can operate undetected. Once gangs are detected, they are unable to continue killing rhino.

d) The time to detection is simply a function of the number of men available for law enforcement. The results of the study quoted*[6]* indicate that approximately 1 man/20km^2 would be required to reduce the time to detection to about 24 hours which is the level which would permit a positive growth rate of about 3% for the rhino population.

e) This entails a staff of approximately 2,500 men in the field to protect the 45,000 km^2 of rhino range in Zimbabwe. The salaries, including back-up staff, and operating costs for this level of law enforcement amount to about US$200/km^2.

f) The recurrent expenditure therefore required to protect rhino effectively in its 45,000km^2 range in Zimbabwe is about US$20 million per annum. The present government allocation for this purpose is about US$10 million. The deficit could be made up by trade in existing stocks of rhino horn, the recovery of horn from the operations mentioned in section 31 above, and limited sport hunting of the species.

Leader-Williams*[10]* argues that there is only one effective method to conserve black rhino and that is *in situ* with adequate funds for law enforcement. Where funds are inadequate, the area to be conserved must be reduced. We would argue further that given a high commercial value, black rhino populations can not only be conserved but should expand.

It has been argued that, if the full support of local rural communities is enlisted, the costs for law enforcement to protect rhino could be greatly reduced. This does not pertain to a situation where the major illegal hunting threat comes from beyond the borders of the country. The illegal value of rhino horn is now so high that hunters are prepared to travel great distances and take considerable risks to obtain horn. It can be expected that urban Zimbabwe citizens will follow the same course.

Rural wildlife producer communities in Zimbabwe are providing considerable support for the rhino conservation effort. Recently there have been several citizen arrests of external poachers in communal lands and local villagers have been passing significant information to authorities. At the same time they are

advising the government that it is high time that the full economic value of rhino is made available to local wildlife producers. In a recent letter to the Department of National Parks and Wild Life Management in Zimbabwe, the CAMPFIRE Association (which is the union of the wildlife producer communities) requested the authorities to permit sport hunting of black rhino in their areas in the interests of the conservation of the species.

5. Information on Similar Species

All rhino species are subject to pressure from illegal hunting. The more highly valued horn from Asian species gives even greater incentives to local hunters. In the context of this proposal, there would be little additional pressure placed on Asian species if legal international trade were permitted from the southern African region. Firstly, the horns are easily distinguishable on chemical grounds*[11]*. Secondly, and more importantly, dealers in rhino horn are able to distinguish Asian species from African with little difficulty. The very high prices paid for Asian rhino horns (over US$10,000/kg) are an obvious indicator that the horns are easily separable.

6. Comments from Countries of Origin

The black rhino population of Africa now survives in viable populations in the wild in only three countries - Namibia, South Africa and Zimbabwe. Kenya has fewer than 400 rhino in heavily protected fenced sanctuaries.

COUNTRY	BLACK RHINO
Namibia	500
South Africa	750
Zimbabwe	2,000
TOTAL	**3,250**

All three Parties support the proposal to trade in rhino horn.

7. Additional Remarks

The present situation does not have a precedent in CITES. Black rhino as a species are in danger of extinction and are rightly listed in Appendix I. However, for the following reasons there is no basis to prohibit legal trade in the products of the species:

a) The legal products are not obtained by killing the animals;

b) The trade would clearly be beneficial to the conservation of the species;

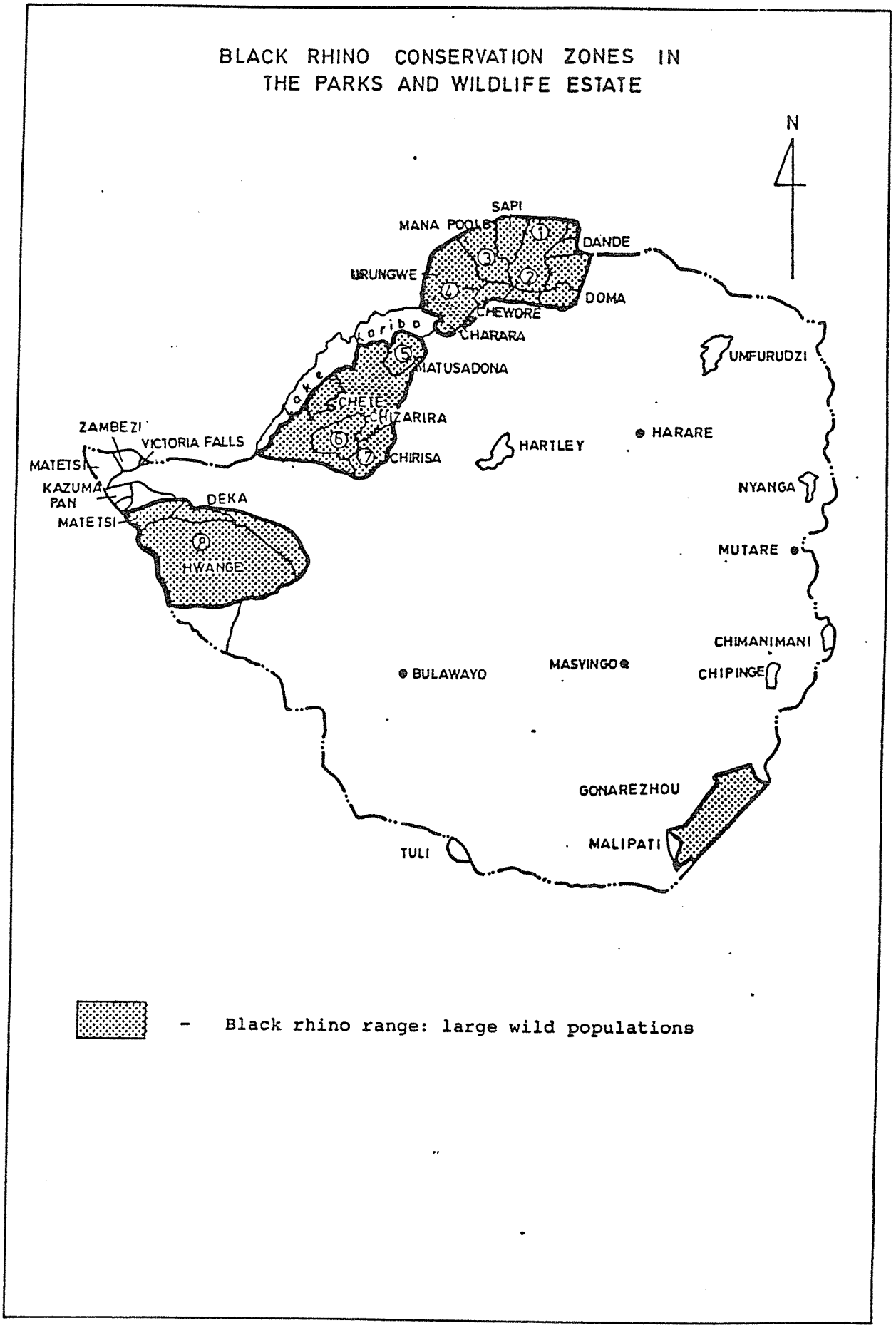
c) The countries of origin are in support of the proposal.

8. Paul Pui-Hay But, Lai-Ching Lung and Yan-Kit Tam, (1990). Ethnopharmacology of rhinoceros horn. I: Antipyretic effects of rhinoceros horn and other animal horns. Journal of Ethnopharmacology 30: 157-168.

9. Martin, Esmond Bradley, (1980). Rhinoceros products in international commerce. In: Proc. International Rhino Conference, San Diego, California, USA, May 1991 (in press).

10. Leader-Williams, Nigel, (1991). Theory and pragmatism in the conservation of rhinos. In: Proc. International Rhino Conference, San Diego, California, USA, May 1991 (in press).

11. van der Merwe, N., (1991). Chemical characteristics of rhino horn as determined by isotopic analysis. In: Proc. International Rhino Conference, San Diego, California, USA, May 1991 (in press).


BLACK RHINO CONSERVATION ZONES IN
THE PARKS AND WILDLIFE ESTATE
N
SAPI
MANA POOLS
DANDE
URUNGWE
DOMA
CHEWORE
Kariba
CHARARA
MATUSADONA
Lake
SCHETE
CHIZARIRA
CHIRISA
ZAMBEZI
VICTORIA FALLS
MATETSI
KAZUMA
PAN
DEKA
MATETSI
HWANGE
HARTLEY
HARARE
UMFURUDZI
NYANGA
MUTARE
CHIMANIMANI
CHIPINGE
MASVINGO
BULAWAYO
GONAREZHOU
MALIPATI
TULI
- Black rhino range: large wild populations

ANNEX 1

DEVELOPMENT OF THE ZIMBABWE NATIONAL CONSERVATION STRATEGY FOR BLACK RHINOCEROS

W.K. Nduku and R.B. Martin

Precis of a paper presented at the
International Symposium on the Biology and Conservation of Rhino
San Diego, California, 9-11 May 1991.

INTRODUCTION

Based on research carried out in the Zambezi Valley during 1988-89, the management plan for black rhino in Zimbabwe needs to address the following:

i) At the prevailing intensity of illegal hunting the rhino population was effectively static - neither increasing or decreasing.

ii) To achieve a positive rate of rhino population growth of the order of 2-3%, law enforcement effort would have to increase approximately five-fold. Densities of field staff would need to be increased from 1man/100sq.km to 1man/20sq.km.

iii) The budget associated with this new level of law enforcement would need to be US$400 per sq.km of rhino range.

The conservation strategy was required to take into account the present distribution of rhino in Zimbabwe, the reality of a possible further decline in numbers, and the likelihood of increased staffing and operational budgets being granted by government.

Prior to the development of this strategy, emphasis had been placed almost exclusively on the conservation of large wild rhino populations in the Parks and Wild Life Estate. There were good reasons for this: large wild populations are the major reservoir of the genetic diversity of black rhino and, if they are permanently destroyed, there is little likelihood that they will ever be restored through captive breeding programmes or translocation from other areas.

After the completion of the research work, several workshops were held to address the options for a conservation strategy. Members of the AAZPA (American Association for Zoological Parks and Aquariums) and several independent scientists participated in these workshops and helped the Department to formulate a "minimum regret" strategy. This strategy, while continuing to place the primary emphasis on conservation of large wild rhino populations, puts into place the necessary components of a "fall-back position" should the decline of rhino continue.

OBJECTIVES OF THE STRATEGY

Recognising that there are considerable risks in banking all rhino conservation efforts solely on large wild rhino populations, it would appear wiser, while numbers of rhino are still significant, to adopt a strategy which take into account the possibility of a continued decline in numbers.

Such a strategy entails securing the full sequence of "fall-back" positions before being forced to adopt them in a crisis situation. This involves tackling four main objectives simultaneously. Each objective deals with an alternative option for holding and managing black rhino. The order in which the objectives are arranged reflects their desirability in a conservation context.

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OBJECTIVE 1: TO CONSERVE VIABLE POPULATIONS OF BLACK RHINO IN THE PARKS AND WILD LIFE ESTATE.

1.1 DEFINITIONS AND CONSTRAINTS

1.1.1 The Minimum Viable Population for long-term genetic fitness should be larger than 1 000 animals. As a discrete population falls below this number, further evolutionary adaptation through natural selection becomes unlikely. Hence the ideal is to build up freely-breeding populations in sufficiently large areas to at least 1 000 individuals (preferably 2 000).

1.1.2 No single region in Zimbabwe now contains a breeding population of this size, although several have the potential (Zambezi Valley, Sebungwe, Matabeleland North and the South-east Lowveld).

1.1.3 The total population within the Parks and Wild Life Estate exceeds a Minimum Viable Population provided it is managed as a Metapopulation which consists of several Subpopulations.

1.1.4 For purposes of decision-taking, the following definitions will apply to Subpopulations:

i) **Large Wild Populations** will consist of 200 or more animals. Such populations will not at this stage require management to conserve genetic variability.

ii) **Intermediate Wild Populations** will be those whose size lies between 100-200 animals. In order to counter the loss of genetic variability, one or two effective breeders are required to be added to such populations every 10-15 years.

iii) **Small Wild Populations** are discrete populations less than 100 animals. These will require more intensive management to counter excessive inbreeding.

1.1.5 Breeding Nuclei outside the Parks Estate (Objective 2) will be described by the same definitions. They will be managed in conjunction with subpopulations in the Parks and Wild Life Estate as part of the overall Zimbabwe Metapopulation.

1.1.6 Successful protection of rhino populations in the wild entails a staff density greater than one man/50sq.km. and preferably one man/20sq.km.

1.1.7 The recurrent expenditure associated with this level of law enforcement is US$200/sq.km in the case of 1 man/50sq.km and US$400/sq.km in the case of 1 man/20sq.km. This expenditure includes salaries and refers to 1989 costs.

1.1.8 Anti-poaching units must be equipped with modern, sophisticated equipment to detect and combat heavily armed illegal hunters using quasi-military tactics. Such equipment is expensive and staff require training in its use.

1.2 IMPLEMENTATION

1.2.1 Given that the present levels of staff and available funding fall below those laid down in criteria 1.1.6 & 1.1.7 above, and that the Treasury is unlikely to increase the budget, the Department will adopt the following strategy:

i) Staff will be redeployed in the existing rhino range to ensure a minimum coverage in all areas of 1 man/50sq.km.

ii) A limited area will be designated within the Parks & Wild Life Estate where effort will be intensified to protect certain Large and Intermediate Wild Populations. Staff densities in this area will initially be 1 man/25sq.km.

iii) This special area will initially comprise eight separate zones in different parts of the Parks and Wild Life Estate, each of which is greater than 1 000 sq.km. and contains more than 100 rhino. Each zone contains areas of optimal rhino habitat in order to reduce the overall area which requires intensive protection. These areas will be designated INTENSIVE PROTECTION ZONES.

iv) Outside Intensive Protection Zones, translocations of rhino will take place to improve the viability of subpopulations and increase the probability of adequate protection.

1.2.2 The Department will monitor rhino population numbers throughout the Parks & Wild Life Estate. Various levels of population will be used as "trigger points" at which management decisions become operative under conditions of decline:

i) Effort will be focussed on Large and Intermediate Wild Populations. Populations which have fallen to the level of Small Wild Populations will be translocated in their entirety and the Intensive Protection Zone deproclaimed.

ii) Intensive Protection Zones will not be used as a source from which to translocate animals for building up other populations while their numbers are below carrying capacity;

iii) Following the deproclamation of any Intensive Protection Zone, the additional staff which were protecting that zone will be redeployed to increase staff densities in the remaining Intensive Protection Zones.

1.2.3 The Department will implement a standard system of monitoring law enforcement effort and the degree of illegal activity.

1.2.4 Rhino populations in the communal lands adjacent to the Parks and Wild Life Estate present an opportunity for experimenting with alternative methods of protection. Translocation of these animals would not be effective since the areas would continue to be repopulated from adjacent land. Translocation would further have negative effects on the current initiatives being taken by rural communities with authority to manage their own wildlife. For these rhino populations, rural communities should be permitted to realise the high economic value of the animals through a system of sustainable use.

OBJECTIVE 2: TO DEVELOP BREEDING NUCLEI ELSEWHERE IN ZIMBABWE AND TO MAINTAIN THEIR GENETIC VARIABILITY.

Breeding Nuclei are translocated populations of rhino held under semi-extensive conditions. Existing Breeding Nuclei on commercial farms now contain slightly less than 200 rhino. In order to ensure that Breeding Nuclei can be developed into populations which are genetically and demographically viable, the following conditions will be observed:

2.1 Each nucleus will be established in an area with carrying capacity for over 100 rhinos. This will permit Intermediate Wild Populations to be established ultimately, requiring less intensive management than Small Wild Populations (1.1.4). Breeding nuclei will be treated as Small Wild Populations until they reach 100 animals.

2.2 The minimum number of Founder Animals in each nucleus will be 40.

2.3 Each nucleus will be managed as a Subpopulation of the total Metapopulation in Zimbabwe (1.1.5) with controlled exchange of breeding animals between the subpopulations.

2.4 The selected areas for Breeding Nuclei will be in the Parks and Wild Life Estate (other than where Large and Intermediate Wild Populations are located) and in certain commercial farming areas located a minimum distance from the borders of the country.

2.5 All custodians of Breeding Nuclei will be required to be members of an Association, linked to the Department of National Parks and Wild Life Management, whose objectives will be to:

i) Establish minimum standards of protection for their areas;

ii) Establish a statistical data base of all rhino in Breeding Nuclei for management purposes;

iii) Manage Breeding Nuclei to maintain genetic diversity according to the best available technical information. To this end, close liaison will be maintained with the Captive Breeding Specialist Group of the International Union for the Conservation of Nature and Natural Resources (IUCN) and its regional captive breeding organisations.

2.6 Breeding Nuclei may only be established or added to from populations falling into the following categories:

i) Large Wild Populations at their carrying capacity;

ii) Populations which have declined below 100 animals and are regarded as seriously threatened;

iii) Translocated groups which are too small to satisfy the criteria laid down for Breeding Nuclei;

iv) Surplus animals from other Breeding Nuclei which have reached their carrying capacity;

v) Animals selected as desirable to prevent inbreeding.

2.7 The proposed programme of translocation of rhino into breeding nuclei has been prepared.

2.8 Additional introductions to small Breeding Nuclei will be closely monitored to observe if they are subject to aggressive behaviour by the resident animals. If necessary to prevent mortality, they would be moved.

2.9 No animals will be captured and translocated from designated Breeding Nuclei during their period of establishment other than to satisfy the requirements of 2.6 v) or to protect the life of a threatened individual.

2.10 If the Department decides that any particular Breeding Nucleus is threatened due to an escalation of illegal activity or is not being adequately managed and protected, it will take whatever measures it deems necessary to secure the survival of the population.

OBJECTIVE 3: TO DEVELOP ONE OR MORE CAPTIVE BREEDING CENTRES IN ZIMBABWE

Captive breeding implies individuals or small groups of rhinos being held in relatively small areas (a few hectares) where they can be afforded maximum protection and can be intensively managed for breeding purposes. The entire food requirement has to be externally supplied. The Department has established a major in-situ captive breeding centre near Harare and there is a small private facility at Chipangali Wildlife Orphanage. Further centres may be established in the country under government or private management in the coming years. The anticipated cost of holding rhino under captive breeding conditions is approximately US$10 000 per rhino per year at the rates applicable in 1989.

3.1 Rhino in captive breeding centres will be managed as subpopulations in conjunction with Small Wild Populations in Zimbabwe and will be integrated into the international ex-situ captive breeding programme.

3.2 Captive breeding centres will meet the highest zoological standards.

3.3 The Department will seek advice and assistance from the Captive Breeding Specialist Group of the IUCN and the AAZPA in order to meet these standards and to optimise management.

3.4 A key aspect of the government centre will be to provide a research facility to examine the following:

i) Requirements for capture, confinement and translocation;
ii) Reproduction;
iii) Disease.

3.5 The centre will serve as a temporary staging post for rhino being translocated to other parts of Zimbabwe, to ex-situ captive breeding programmes and for animals receiving veterinary treatment.

3.6 All rhino passing through the centre will be dehorned as a matter of routine. The sale of this horn will be used to meet the costs of maintaining the centre.

OBJECTIVE 4: TO CONTINUE TO SUPPORT THE INTERNATIONAL EX-SITU CAPTIVE BREEDING PROGRAMME.

It is recognised that ex-situ captive breeding is a "back-up" to in-situ conservation. Proponents of the international programme for captive breeding do not in any way view this form of rhino propagation as a substitute for conservation of wild populations. Rather it is seen as the final form of insurance against the ultimate loss of a species.

The international captive breeding programme recognises four separate sub-species (or races) of black rhino:

i) The south-western population in Namibia;

ii) The southern-central populations extending from Natal through Zimbabwe and Zambia into southern Tanzania (Diceros bicornis minor);

iii) The eastern populations in Kenya and northern Tanzania; and

iv) The northern-western populations extending from the horn of Africa to the Central African Republic and Cameroon.

It has been agreed by the Captive Breeding Specialist Group that, until evidence is presented to the contrary, it would be wisest to pursue separate captive breeding programmes for each of the above groups to preserve their genetic diversity.

At this stage, only the eastern populations are adequately represented by sufficient founder animals in zoos outside Africa. The minimum number of founder animals recommended for each of the above groups is 20 animals, but a larger number (up to 50) would be preferable to ensure adequate genetic diversity. As of December 1989, 14 founder animals of the southern-central group are represented in the captive breeding programme.

4.1 Zimbabwe recognises that the the ex-situ captive breeding programme for black rhinoceros is designed as an adjunct to efforts to conserve rhinos in-situ in Africa.

4.2 Zimbabwe understands that, at considerable cost to the zoo community, provisions have been made for breeding a captive population of up to 150 black rhinoceros (of all the above races).

4.3 Zimbabwe feels strongly that the ex-situ captive breeding programme should be carried out under the auspices of scientific institutions coordinated under the IUCN Captive Breeding Specialist Group. The Government will be most reluctant to release rhino from Zimbabwe except to a technically sound programme.

4.4 Zimbabwe has contributed 14 animals since 1982 to the ex-situ captive breeding programme (excluding a donation of 4 animals to North Korea, 2 to Yugoslavia and 6 to Swaziland).

4.5 Zimbabwe will continue to support the provision of Diceros bicornis minor founder animals to the ex-situ captive breeding programme until there are adequate numbers of southern-central rhino for a high probability of successful propagation in the long-term.

4.6 Zimbabwe is aware, however, that other countries could contribute to the provision of these founder animals and that, in pursuance of a policy of translocating the least viable and most vulnerable animals, there is a strong case for Diceros bicornis minor founder animals to be drawn from other parts of the region.

4.7 Zimbabwe will relate its own captive breeding programme to the ex-situ propagation effort and manage in-situ captive animals as a subpopulation within the global metapopulation (para 3.1).

4.8 Zimbabwe is optimistic that it will succeed in its own conservation effort and that it will never be necessary to seek the return of black rhino to re-establish a population which has become extinct. However, Zimbabwe is confident that, in this unlikely eventuality, it will be able to rely upon the international zoo community to honour its obligations in this respect.

ANNEX 2

THE FUTURE FOR BLACK RHINO CONSERVATION IN ZIMBABWE

W.K. Nduku and R.B. Martin

Extract from a paper presented at the International Symposium on the Biology and Conservation of Rhino San Diego, California, 9-11 May 1991.

Having outlined a conservation strategy we will now express our discomfort with it. As a plan, it is the conventional reaction of any responsible conservation agency when faced with the sort of crisis which presently confronts the black rhinoceros. The reaction is to intensify law enforcement and to prepare emergency measures to remove rhino from vulnerable areas. It may work in the interim. The fact that Zimbabwe still has a large rhino population is due to dedicated law enforcement staff and government commitment to conservation.

There is little doubt that the situation is critically poised. The current rate of loss of rhino to illegal hunting is closely balanced by annual recruitment to the population. Statistics for 1988 - 1991 indicate that there has not been any further significant decline in rhino numbers. Equally well it is unlikely that the population has increased. If anything, the recent intensification of illegal hunting outside the Zambezi Valley foreshadows further declines in the future.

It would require very little to tip the scales in either direction. A large increase in government investment supporting the law enforcement effort could significantly improve matters. Any further deterioration in the budget allocated to the Department is likely to destroy morale and precipitate a rapid escalation in illegal hunting.

The Department views the problem primarily as one of recurrent expenditure. The threshold levels of staff and funding for successful law enforcement are clearly defined and they far exceed any possible contributions which can be realistically expected from local or external donors.

To conserve the effective range of black rhino on State Land in Zimbabwe requires an annual budget of the order of US$20 million (approximately double the current budget). The contribution from all donor sources has never amounted to US$1 million in any year since the inception of the present crisis. Moreover donor funding is generally in the form of capital assistance and has no influence on operational costs. The problem will have to be solved within government.

The costs of conserving black rhino in the wild (roughly double the normal law enforcement costs) must inevitably be viewed by the managers of government funds as a large non-productive investment. Even if the Department is successful in its conservation efforts it is difficult to see what tangible benefits will arise to convince the investors that the exercise was worthwhile. The argument that it has been done for the sake of conservation is not enough: the treasurer can justifiably argue that this type of conservation is a bottomless pit and that existing grants are the full and final measure of the extent to which public monies can be diverted from other productive uses.

There is a growing mood amongst many southern African conservationists that the time has come to review the options for conserving the black rhino. There is an undeniable economic value attached to rhino which might well be used to conserve the species.

Options which offer themselves readily as a sustainable source of income are:

i) **Re-opening the legal trade in rhino horn:** Many southern African countries are now holding large legal stocks of horn which could contribute significant funds to rhino conservation.

ii) **Farming rhino for their horn:** This would involve removing horns painlessly under captive conditions without killing animals. The horns regrow and provide a sustainable income. As a form of land use, returns might exceed US$50/ha which should be compared with cattle farming at about US$5/ha.

iii) **Sport hunting of rhino:** The trophy fee for a black rhino may exceed US$250 000. The use of this income could provide the essential funds for conserving the species.

iv) Supplying live rhino for external and internal captive breeding programmes in exchange for major contributions to conservation budgets within Zimbabwe.

Many of these options are repugnant to many people. However, the situation may well have reached the stage where moral and ethical preferences are secondary to the larger issue of species extinction. Removal of the present constraints which are acting against survival of the species could provide the turning point in rhino conservation.

Of the above options, one which should be considered urgently is the re-opening of the legal trade in rhino horn. There is a fundamental flaw in the conventional reasoning process which underlies the CITES ban - which goes thus:

"Too many rhino are being killed to satisfy a demand for horn"

ergo -

"If trade is stopped then fewer animals will be killed."

It sounds plausible. But before accepting either the first sentence, which is a statement of the problem, or the second sentence, which is the supposed solution to the problem, there are questions to be asked:

i) Is it not possible to prevent the rhino from being killed?
ii) Can the demand for horn be reduced to the point where it is not worth killing a rhino?
iii) Can trade be prevented?

- Rhino are being killed <u>because they are inadequately protected.</u> It costs US$400/sq.km to protect rhino and, with the exception of South Africa, no country in Africa is spending this amount.

- A recently published paper indicates that the medicinal efficacy of rhino horn may be real (But, Lung & Tam 1990), in which case it is unlikely that demand will be significantly reduced.

- A world trade ban has been in place for fifteen years and it has failed dismally: markets which have been established for hundreds of years cannot be easily closed.

If it is not possible to prevent rhino being killed AND the demand cannot be reduced AND trade cannot be prevented then the CITES solution is not a solution at all. If the species cannot be protected, it will be illegally killed as long as there is any level of demand.

It is quite irrelevant if every government in the world agrees to a ban. If governments cannot prevent rhino being killed, by the same token they cannot prevent illegal movement of rhino horn. The law enforcement costs are too high. It is not feasible to prevent smuggling amongst Asia's human population of two billion and Africa's population of one billion. There is no African government that allows legal killing of rhino or movement of rhino horn. The problem is that they can do little about it and neither can importing countries.

The CITES solution also fails to make any distinction between legal or illegal trade. If the illegal trade exceeds a sustainable harvest from the population, it is reasoned that the legal trade should cease. Rhino horn owned by African governments is not obtained from any overt harvesting programme. Rather it arises from an accumulation of natural mortality, horns knocked off rhino in the course of translocation or fighting, and confiscations from illegal hunters. Trade in such products will in no way influence the survival of rhino.

It may be argued that the legal trade provides the conduit by which illegal goods can be "laundered". Illegal horns will be added to legal consignments at various staging posts along the route to the end consumer and so be legalised along the way. The response to this is that the illegal trade is alive and well at the moment without the assistance of the legal trade. If it really is impossible to separate legal and illegal trade then there is no purpose in the CITES convention. We do not believe it would be impossible in the case of rhino horn: government-to-government transactions invloving uniquely marked or tagged horns are eminently feasible.

The question to be asked is whether conservation of the species would be better served through a controlled supply of horn or by the rejection of consumers who will obtain horn illegally if denied a legal source. There is no question of flooding the market with horn to reduce price: the sustainable yield from the present rhino population in Africa is too low to meet the Asian demand.

Zimbabwe has always resisted any form of exploitation of black rhino largely to indicate solidarity with other African countries where the species has been endangered and to comply with the Appendix I status of

the species under CITES. However, the ban has not worked and most of these countries have now lost their large wild rhino populations. Now that African rhino species survive effectively only in three southern African countries and all of these countries share a common approach to conservation, there would appear to be little reason to continue a trade ban.

Zimbabwe's conservation philosophy is pragmatic. We believe that protective legislation contributes little to species survival. Where the status of a species gives rise for concern, a positive conservation effort is required to increase its numbers, such as the restoration of habitats or intensive captive breeding programmes. When crocodiles were endangered 20 years ago, Zimbabwe embarked on a vigorous programme of crocodile farming which not only restored the species to abundance but also resulted in a sustainable multi-million dollar industry.

In the case of black rhino we are anxious to see the status of the species improved to the point where there is no longer any need for legal protection and where the animals can be treated like every other successful species in Zimbabwe.

Trade in existing stocks of rhino horn (for both black and white rhino) and the horn expected to accumulate from management of live rhino would result in a significant return to conservation. The amount would far exceed all external donor funding and allow the country to be self-sustaining in its conservation effort.

The dilemma for us is that failure to implement normal economic systems which have enhanced the status of other species may soon result in a situation where we are never able to implement them in the case of rhino. Any further decline in the population will result in a more precarious situation and we will have lost the opportunity.

REFERENCE

Paul Pui-Hay But, Lai-Ching Lung and Yan-Kit Tam (1990): Ethnopharmacology of rhinoceros horn. I: Antipyretic effects of rhinoceros horn and other animal horns. Journal of Ethnopharmacology 30: 157-168.