

The conservation and protection of the black rhinoceros *Diceros bicornis* in Zimbabwe

G.H. TATHAM and R.D. TAYLOR

Tatham, G.H. and R.D. Taylor. 1989. The conservation and protection of the black rhinoceros *Diceros bicornis* in Zimbabwe. — Koedoe 32 (2): 31-42. Pretoria. ISSN 0075-6458.

The demise of black rhinoceros populations in Africa is alarming and the overriding cause for the decline is illicit poaching for horn. In 1987 Zimbabwe hosted the largest contiguous population of 500 animals in the Zambezi Valley while the country's overall population is now estimated to be nearly 2 000 individuals. A strategy to conserve and protect the black rhinoceros *Diceros bicornis* in Zimbabwe requires four dimensions, each dependent directly or indirectly on the other, if success is to be achieved. It includes a positive reaction by the Department of National Parks and Wild Life Management, a national reaction by the government totally committed to the protection of the species, an international reaction requiring support for the stand that Zimbabwe is taking and, finally, a system of intelligence gathering which assists the different authorities in the overall conservation strategy which is being implemented.

Key words: Zimbabwe, range of black rhinoceros, poaching, distribution, conservation strategy.

G.H. Tatham and R.D. Taylor*, Department of National Parks and Wild Life Management, P.O. Box 8365, Causeway, Harare, Zimbabwe. (* To whom correspondence should be addressed at: WWF Multispecies Project, P.O. Box 8437, Causeway, Harare, Zimbabwe).

Introduction

In 1970 there were probably over 65 000 black rhinoceros *Diceros bicornis* (Linnaeus, 1758) remaining on the African continent. By 1980 this number had declined to 15 000 animals (Hillman 1981) and to 9 000 in 1984 (Western & Vigne 1985). There are now less than 4 000 left in Africa (Cumming 1986). Whereas fifteen years ago Zimbabwe's black rhinoceros population, estimated to be about 1 000, constituted less than 2 percent of the continental total, today the estimated black rhinoceros population of nearly 2 000 in Zimbabwe is the largest in Africa and constitutes 46 percent of the continent's total remaining numbers (Cumming 1987). The only contiguous population of more than 500 animals in Africa occurs in the Zambezi Valley of Zimbabwe between Kariba and Kanyemba. Consequently, in protecting this last stronghold, Zimbabwe has a major responsibility in ensuring the continued survival of the species in the wild in Africa.

Historical distribution and recent decline

Until the mid-19th century black rhinoceros had a more or less continuous distribution from Mali eastward to Ethiopia and Somalia and then southward through East Africa to southern Africa. By 1900, black rhinoceros had disappeared from most of southern Africa but were still well distributed throughout much of the remainder of their former range, except

in West Africa. By 1981, the range of black rhinoceros had been fragmented considerably, but there were still several thousand or more in the Central African Republic, Tanzania and Zambia (Western & Vigne 1985).

These populations have now collapsed and the distribution of black rhinoceros is even more fragmented and remaining numbers are precariously low (Table 1). The decline in range and numbers over the last 15-20 years has been characterised by the rapid disappearance of large populations in Kenya, followed by the Central African Republic, Zambia and more recently, Tanzania (Table 1). Associated with the decline is the increasing breakdown of once contiguous populations into smaller isolated units. This in turn threatens survival in the form of reduced genetic diversity and inbreeding depression even if these populations are effectively protected from poaching (Western & Vigne 1985; Cumming 1987; Du Toit, Foose & Cumming 1987).

Table 1
Estimates of black rhinoceros numbers in African countries
(Data from Cumming 1987)

Country	Year 1980	1984	1986
Angola	300	90	?
Botswana	30	10	?
Cameroun	110	110	70
Central African Republic	3 000	170	?
Ethiopia	20	10	?
Kenya	1 500	550	381
Malawi	40	20	30
Mozambique	250	130	?
Namibia	300	400	440
Rwanda	30	15	20
Somalia	300	90	?
South Africa	630	640	510
Sudan	300	100	?
Tanzania	3 795	3 130	400
Tchad	25	5	?
Uganda	5	0	0
Zambia	2 750	1 650	200
Zimbabwe	1 400	1 680	1 737

Poaching activity and demand for rhinoceros horn

The overriding cause of the decline in black rhinoceros in Africa has been commercial poaching for the horn of the animal which is exported illegally to North Yemen and to the Far East. In North Yemen the horn is carved into dagger handles (Martin 1987) while in Asia it is used in traditional medicine where it is believed rhinoceros horn products reduce fevers and cure other ailments (Martin & Martin 1982). The wholesale price of raw rhinoceros horn in Africa is about US \$650 per kg, whilst the wholesale value of all African horn newly introduced to the market is an estimated US \$2 million annually (Sheeline 1987).

The poaching of black rhinoceros is a highly organised and sophisticated operation, involving wealthy international traders and often highly placed

corrupt politicians, bureaucrats and businessmen (Cumming 1986, 1987). These people hire experienced and determined poachers who in turn take on underlings as porters and camp attendants. The regular supply of heavy calibre sporting rifles and semi-automatic military weapons together with ammunition and other logistical support, including the exchange of intelligence and the movement of horn and other wildlife products, provide an indication of the level of efficiency, professionalism and corruption with which poaching operations are conducted. The individuals involved are able to evade the law in their own countries and appear immune to the efforts of wildlife agencies.

Status and distribution of black rhinoceros in Zimbabwe

Zimbabwe's black rhinoceros population is presently estimated at nearly 2 000 animals. These occur in three major and discrete concentrations in the north and west of the country with a fourth, smaller, concentration in the south-east. Following translocation, new breeding units have been established elsewhere in the country.

1. Zambezi Valley

The largest contiguous population is that in the middle Zambezi Valley between Kariba and Kanyemba, where the population of black rhinoceros is estimated to be at least 750 animals. Parks and Wild Life Land supporting black rhinoceros includes Mana Pools National Park and the Charara, Urungwe, Sapi, Chewore, Dande and Doma safari areas. Black rhinoceros are also found in the Communal Land areas of the Zambezi Valley, in particular Dande Communal Land adjacent to the Dande Safari Area. It is the Zambezi Valley population of rhinoceros that is currently under severe threat from armed poachers. Most rhinoceros killed to date have been shot by Zambian nationals.

2. Sebungwe Region

In the Sebungwe region south of Lake Kariba, it is estimated that the Parks and Wild Life Land comprising Chizarira and Matusadona national parks, and Chirisa and Chete safari areas holds at least 600 rhinoceros. However, these smaller protected areas are set amidst settled Communal Land, so that rhinoceros populations within each tend to be discrete, apart from those in Chizarira and Chirisa which share a common boundary. Nevertheless, a number of rhinoceros (up to 25-30) still remain outside of the protected areas in the adjacent Communal Lands.

3. Hwange-Matetsi Complex

The population of black rhinoceros in western Zimbabwe, in the Hwange National Park — Matetsi Safari Area complex, is in excess of 250 animals, with the bulk of these occurring in Hwange National Park.

In both Hwange and Matetsi, present numbers have built up following re-introductions during the sixties and seventies (Herbert & Austen 1972; Booth, Jones & Morris 1984) as black rhinoceros had become locally extinct there by 1928. Numbers are currently being increased by introductions from the Zambezi Valley (see below).

4. Gonarezhou National Park

Historical records of the occurrence of black rhinoceros in the south east of

Zimbabwe are scarce (Roth 1967) and the present population of black rhinoceros in the Gonarezhou National Park represents an introduction of some 80 animals in 1971-72 from areas of the eastern Zambezi Valley where these animals had come under poaching threat at the time (Anon 1971). Unfortunately, since this initial introduction the Gonarezhou population has been subjected to a continuous low level of poaching, which has recently escalated, and numbers are now probably less than 75 (Cumming 1987). Again, armed poachers crossing an international border are responsible for most killings.

The surveys of Roth (1967) and Kerr & Fothergill (1971) over fifteen years ago indicated a total population of about 1 000 black rhinoceros in Zimbabwe. At the time Kerr & Fothergill (1971) considered that Roth's (1967) estimate of 1 200 rhinoceros was high and they estimated less than 800 rhinoceros to be present in the country. In both cases survey estimates were very rough, consisting either of extrapolations based on limited surveys or local knowledge and personal experience. The situation is little better today and a major shortcoming is the lack of appropriate census techniques to provide reliable and accurate estimates of rhinoceros numbers. Rhinoceros numbers censused by aerial survey are generally underestimated (Hillman 1981), so that figures given are, at worst, conservative. Nevertheless, present estimates indicate that black rhinoceros numbers have increased in Zimbabwe over the past 15-20 years.

Recent and current losses

Over the years, black rhinoceros in Zimbabwe have been subject to controlled hunting and poaching, and Roth (1967) reports the killing of 556 between 1919 and 1964. By 1970 a further 100 had been killed most of which were due to poaching (Kerr & Fothergill 1971). Undoubtedly killing of rhinoceros declined in the 1970s during the war for independence, although increasing losses of rhinoceros were reported elsewhere on the continent (Martin & Martin 1982). From aerial surveys during the period 1980 to 1982 it was established that rhinoceros were being poached in Zambia opposite the Zimbabwean protected areas of the Zambezi Valley. During 1983 up to 30 black rhinoceros were poached in Zimbabwe in the Dande Communal Land adjacent to the Zambezi Valley Parks and Wild Life Land, although this situation was brought rapidly under control by the Department of National Parks and Wild Life Management. From July 1984 onwards the poaching of rhinoceros commenced in the protected areas of the Zambezi Valley and by 1985 the struggle to save the rhinoceros had begun in earnest.

Rhinoceros losses to date in the Zambezi Valley (July 1987) are summarised in Table 2. Against this loss has been the killing of 29 poachers, the capture of a further 21 poachers as well as the seizure of 71 individual rhinoceros horns, 30 sporting rifles and semi-automatic military weapons, mainly .375, .303, AK47, SKS and NATO G3, together with considerable quantities of ammunition.

The decimation of rhinoceros due to poaching activity in Zambia (Table 1), especially in the Luangwa Valley coincided with an increased onslaught of rhinoceros in the Zambezi Valley (Table 2). High densities of rhinoceros

allowed high kill rates, incursions were very frequent and the determination of the poachers was much greater than has been anticipated previously. A broad-based strategy had to be developed which takes into account not only the resources available to combat the problem in the field, but also numerous other factors relating to rhinoceros poaching, such as trade, intelligence, and diplomatic initiatives as well as conservation and protection of the species.

Table 2
*Known numbers of black rhinoceros killed by
 poachers in the Zambezi Valley,
 July 1984-July 1987*

Area	Year				Totals
	1984	1985	1986	1987	
Charara	—	6	5	2	13
Rifa	10	39	8	6	63
Sapi	—	—	30	5	35
Nyakasanga	35	—	22	—	57
Mana	—	10	18	16	44
Chewore	2	—	24	27	53
Dande	—	—	5	5	10
Kanyemba	—	—	9	4	13
Totals	47	55	121	65	288

Rhinoceros conservation strategy

A strategy to conserve and protect the black rhinoceros population in Zimbabwe requires four dimensions (Fig. 1), each of which depends either directly or indirectly on the other.

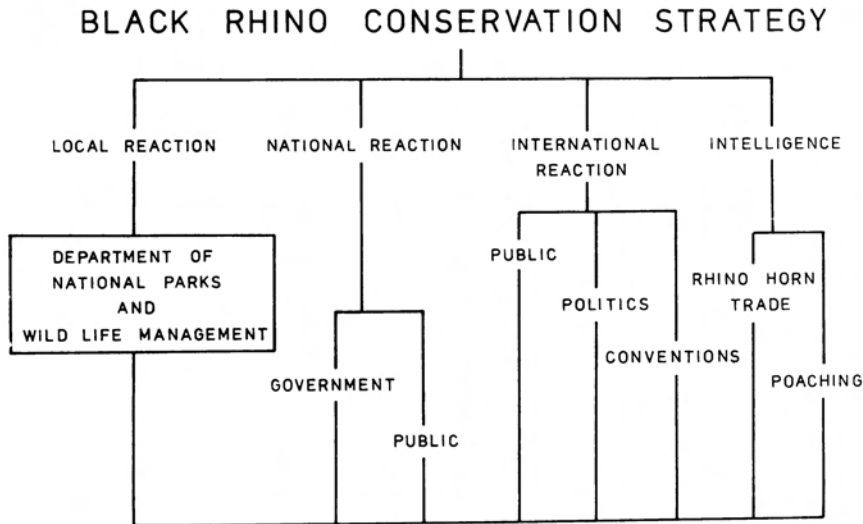


Fig. 1. The strategy to conserve and protect the black rhinoceros in Zimbabwe, has four dimensions which includes local reaction, national reaction, international reaction and an intelligence network.

1. Local reaction

The management authority responsible for administration of the wildlife resource in Zimbabwe is the Department of National Parks and Wild Life Management (Fig. 2). The local or departmental response to the poaching of rhinoceros can be broken down into three components:

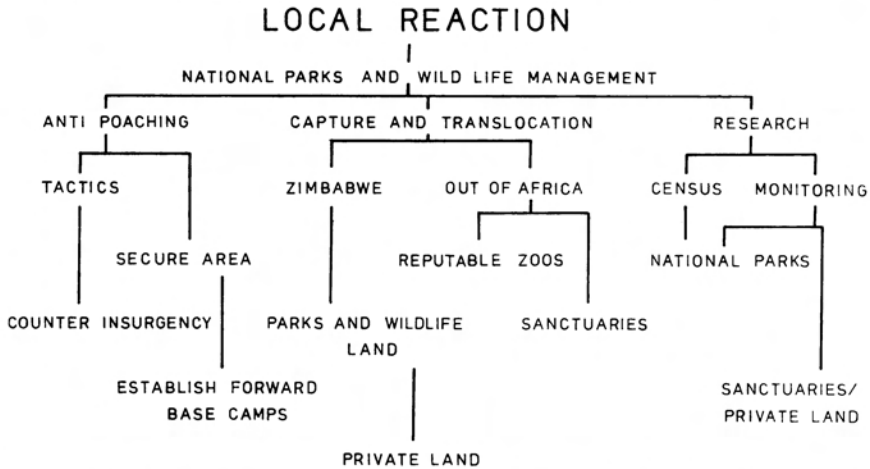


Fig. 2. Local or departmental response by the Department of National Parks and Wild Life Management includes anti-poaching, capture and translocation procedures and research as components.

(i) Anti-poaching

A prerequisite to the commencement of the anti-poaching operation has been to structure strategy, tactics and other efforts along military lines. Combating skilled poachers armed with automatic rifles is akin to counter-insurgency warfare. Operational areas have to be secured by intensifying ground coverage and establishing strategic forward base camps. Anti-poaching operations rely directly on manpower resources, suitably trained and equipped. This includes meeting an individual's personal needs such as appropriate clothing and specialised patrol equipment, in addition to modern weaponry, transport and good base camp accommodation. Guaranteed salaries and field allowances must be ensured. National parks personnel face the possibility of death whilst protecting the black rhinoceros so that dedicated, well disciplined men need to be deployed within the operational areas. The anti-poaching operation is the frontline of defence and the major field action. Unfortunately, costly in terms of both resources and manpower, it must nevertheless remain one of the most important dimensions of the strategy.

(ii) Capture and translocation

To minimise the loss of animals to poachers, the second important component is the capture and translocation of the rhinoceros out of the Zambezi Valley. Translocations to other relatively safe areas within Parks and Wild Life Land where these animals are known to have existed previously are presently taking place. To date 130 rhinoceros have been moved to Hwange National Park, 12 to the Matetsi Safari Area and a new nucleus of 12 to the Matobo National Park.

Translocation is also taking place onto privately-owned commercial farm and ranch land. Once land owners can satisfy a number of minimum qualifying requirements, such as adequate areas of suitable habitat and appropriate security, they are granted authority to hold in custody on behalf of the State, an allocated number of rhinoceros. In this way additional breeding herds can be established. Once densities reach saturation, the return of progeny to areas of evacuation can take place, provided these areas are safe and secure. So far, under this arrangement, a total of 79 rhinoceros have been placed on private land in the highveld, midlands and lowveld region of the country.

Translocation to other national parks, suitable zoological gardens and other such institutions both in Africa and beyond the continent is also being actively considered and pursued. Again the objective is to guarantee the security of the species and to provide captive breeding units. In this regard the presence of rhinoceros in certain Communal Lands in the Zambezi Valley can be used to considerable advantage. The live sale of such animals to approved foreign zoological gardens or buyers can generate considerable revenue for the communities of these Communal Lands, thus raising the value of rhinoceros very much higher than a poacher can hope to realise for supplying horn. At the same time public awareness of the conservation value of the species can be greatly enhanced. The poacher can then be seen as the anti-social criminal he is, depriving local communities of legitimate benefits from their wildlife resources.

(iii) Research

Research into the components of the rhinoceros conservation strategy includes a number of ecological, biological and socio-economic aspects. Baseline information on the Zambezi Valley rhinoceros population requires appropriate census and monitoring techniques and a basic understanding of the population dynamics and behaviour of the species in this environment.

The translocation of black rhinoceros also requires careful documentation and monitoring. In particular, adjustments to new habitats, the establishment of home ranges and the maintenance of breeding between limited numbers of animals needs investigation. Rural and urban public attitudes towards rhinoceros conservation should be appraised. In particular, the legitimate use of rhinoceros should be demonstrably higher than any illegal use, i.e. poaching. This can be achieved through live capture, translocation and sale to foreign countries.

2. National reaction

(i) Government

The total commitment of Government in support of the conservation and protection of the black rhinoceros is paramount and is a prerequisite to success in all other endeavours (Fig. 3). Political support for current field action has been forthcoming from the Head of State and ultimately Government alone is responsible for the future of the black rhinoceros in Zimbabwe. It must ensure that the Department of National Parks and Wild Life Management can continue to maintain its capability to administer and manage the wildlife resources of the country. Support from non-government organisations, while much needed and greatly appreciated,

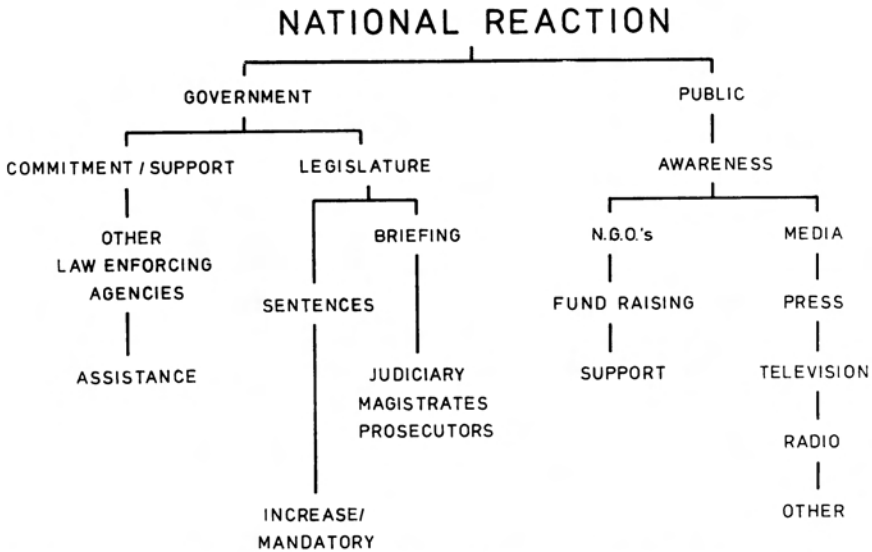


Fig. 3. National reaction implies the commitment of government in support of black rhinoceros conservation and protection as well as an informed public aware of the problem.

should be used to augment treasury funds already allocated for capital and recurrent expenditure.

Other Government agencies must be called upon to give active and meaningful support. In particular, the support of other law-enforcing agencies should be unswerving and as equal in dedication as that of the Department of National Parks and Wild Life Management. Legislation has had to be updated and a major milestone was passed when the mandatory sentence for killing a rhinoceros and the possession of rhinoceros horn was increased from two to five years. Members of the judiciary, police and other officials responsible for the legal processing of cases pertaining to rhinoceros poaching, are required to be fully briefed on the seriousness of the situation. Contravention of specific sections of legislation protecting black rhinoceros should not receive leniency and mitigating evidence not given credence. Evidence in aggravation should be led at every opportunity with the relevant statistics depicting the ever-diminishing population of rhinoceros in Africa.

(ii) Public reaction

Mobilisation of popular public support is vital in creating awareness of the problem. The various media and non-government organisations (NGOs) have contributed significantly in this respect. The Zimbabwe National Conservation Trust, which is responsible for the Rhino Survival Campaign, was founded in 1974 by a group of leading conservationists and is given considerable support by the nation's industrial, commercial and financial houses (Pile 1987). The Trust co-ordinates the activities of conservation-orientated NGOs and acts as spokesman on behalf of these organisations when presenting matters of concern to the government of Zimbabwe or its technical departments.

Since 1985, the Trust, in conjunction with the Wildlife Society of Zimbabwe and the Zambezi Society, through promotion and fund-raising, have developed a support programme capable of providing much needed field equipment, such as backpacks, water bottles, sleeping bags, mosquito nets and tents. Under the umbrella of the Trust, the Rhino Survival Campaign has raised in cash and kind in excess of Z\$1 million (Pile 1987).

3. International reaction

(i) Political

International political support (Fig.4) for the stand Zimbabwe is taking against rhinoceros poaching is critical, particularly in view of the fact that poachers are being killed by Zimbabwean anti-poaching forces. African countries need to publicly endorse the urgent need to save the black rhinoceros from extinction, especially neighbouring countries from where poachers originate. Moreover, incursions of armed bandits entering into a sovereign state from a neighbouring country constitutes an international violation and a threat to national security which should incite considerable debate at heads of state level.

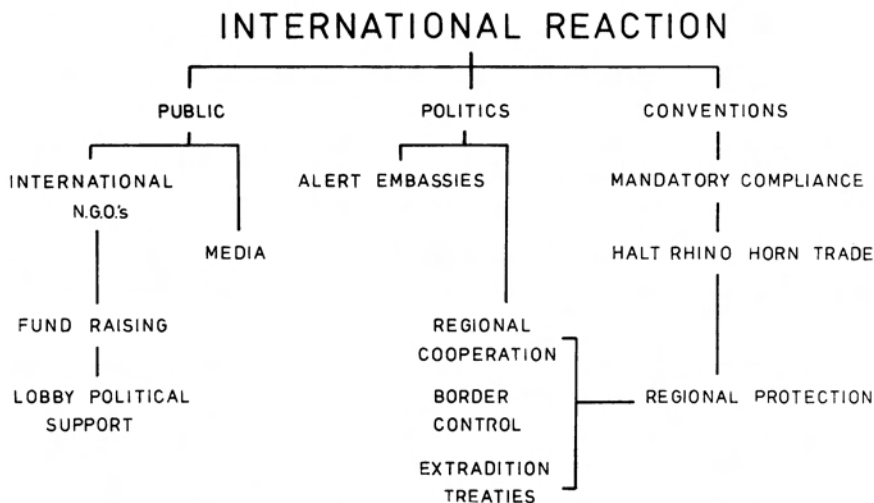


Fig. 4. International political support for the stand Zimbabwe is taking against black rhinoceros poaching is critical.

Beyond Africa, the issue requires focussing the attention of states directly involved in the trade of rhinoceros horn, with political pressure being brought to bear upon such states to prohibit the trade. Such initiatives have already been taken and they must be continued.

(ii) Public

Continuous communication must be maintained with the international media. They should be encouraged to visit operational areas on a regular basis and be exposed to the problem at first hand. As with other environmental issues, the rhinoceros crisis should be exposed, receive constant coverage and be publicised at every available opportunity to promote international concern.

International conservation organisations have also responded to the plight of the rhinoceros in Zimbabwe. Here special mention must be made of the New York-based Foundation to Save African Endangered Wildlife (SAVE). This small but extremely dedicated and energetic organisation has raised funds to supply two aircraft, boat engines, computer hardware, and a variety of field equipment. One of the most significant contributions has been to provide an excellent VHF radio communications network for the Zambezi Valley, which is presently being extended to elsewhere in the country.

Recently the World Wide Fund for Nature (WWF-International) has undertaken to contribute to the operational costs of a helicopter in the Zambezi Valley for the next three years. This additional boost to current anti-poaching operations has already proved a considerable deterrent to cross-border incursions.

4. Intelligence gathering

The loss of some 60 000 animals over the past 15 years reflects the activities of well structured and highly professional crime syndicates. The alliance of politicians, bureaucrats and businessmen, who are obviously corrupt, and care little for human lives or the economies of their respective countries, needs to be broken (Fig. 5). The first step is to identify the key individuals, then break the alliance, through whatever means are most appropriate, and so stem the strong local and regional demand for rhinoceros horn (as well as illegal ivory) (Cumming 1986). This requires a systematic method of gathering, analysing and disseminating intelligence data on all aspects of rhinoceros poaching and the subsequent role of middlemen in the acquisition of horn and its disposal. This responsibility is beyond the role of conservationists and wildlife department officials and requires the involvement of heads of state and professional experts at a national and international level.

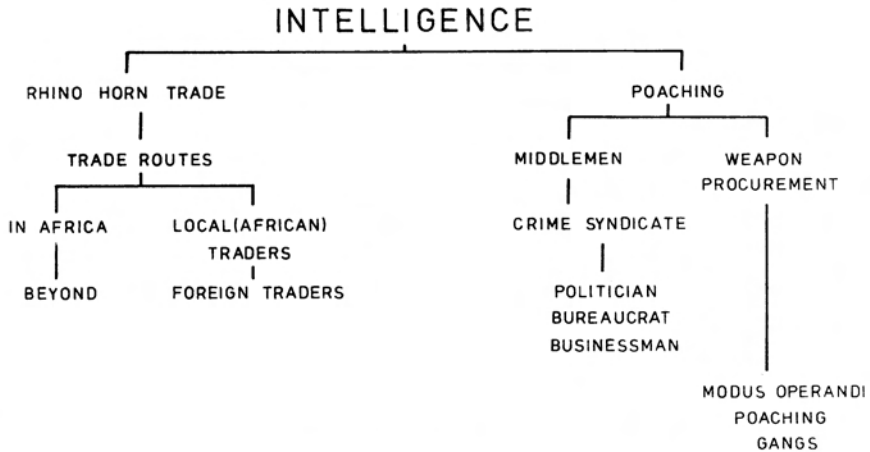


Fig. 5. The decline in black rhinoceros numbers reflects the activities of a professional crime syndicate. To stem the poaching tide requires a systematic method of gathering, analysing and disseminating intelligence data on all aspects of rhinoceros poaching.

A prerequisite is direct and continuous cooperation from international law enforcing and intelligence gathering agencies with a formal request to foreign embassies that support the rhinoceros survival campaign to assist in these endeavours.

Conclusion and prospects

Black rhinoceros on the continent of Africa now face almost certain extinction in the wild. Zimbabwe is clearly in a position to prevent this occurring. Ideally, an immediate halt to both poaching and trade in rhinoceros products is desirable. However, this appears presently impossible to achieve in full. Without the maintenance of security, respect of the law and an honest judiciary, there is no hope of safe-guarding rhinoceros populations (Martin & Martin 1982). As these authors correctly state, "... The very first step to be taken in any country before conservation action can be carried out with a chance of success is to ensure that law-enforcement bodies are fully in control. And that is a matter for government, not for outsiders ..."

Zimbabwe is taking cognisance of what has happened elsewhere on the continent. The Department of National Parks and Wild Life Management has placed emphasis on looking after the personal interests of men in the field by ensuring they are well fed, clothed and paid. Adequate housing for staff is a more important priority than the acquisition of extra vehicles or a helicopter. Moreover, aircraft and vehicles are seen as a means to an end. Their role is supportive for the man on the ground who must remain the most important element of the anti-poaching war.

Penalties for killing rhinoceros have been increased, sentences are mandatory and the courts are becoming increasingly aware of the crisis the black rhinoceros faces. Non-government support, both national and international, has been overwhelming, but these efforts will need to be sustained. Greater public awareness and bolder approaches to fund raising will be necessary. Very recently, initiatives have been taken at a diplomatic level and the need for intelligence data is well recognised. Each of the four dimensions of the overall conservation strategy must be tackled with equal vigour and determination if success is to be achieved.

While recent initiatives in attempting to curb the demand for rhinoceros horn, particularly in North Yemen, give some cause for optimism (Martin 1987), the demand nevertheless remains great and the price is so exorbitant that poachers and traders will continue to take enormous risks, as Zimbabwe is discovering to its cost. Only unrelenting pressure on the trade and markets and increased efforts on the part of producer countries will allow rhinoceros to survive, let alone recover, in the wild (Sheeline 1987). The predicament facing the black rhinoceros reflects the current situation for conservation of African wildlife. This state of affairs is an indictment upon conservation agencies and governments, clearly showing that they have failed to implement effectively their respective conservation policies and enforce the laws that protect wildlife. The hope is that Zimbabwe's attempt to save the last remaining viable, natural population of black rhinoceros from extinction, will be the watershed for the reversal of this situation.

Acknowledgements

We thank the field staff of the Department of National Parks and Wild Life Management for their continued efforts in contributing to the information contained in this report. Warden A.M. Coetsee provided details of rhinoceros capture and translocation and poaching statistics were collated by senior ranger K.H. Leatham. This paper is published with the approval of the director, Department of National Parks and Wild Life Management.

References

- ANON., 1971. Black rhinos moved 600 miles to sanctuary. *African Wildlife* 25:54-57.
- BOOTH, V.R., M.A. JONES and N.E. MORRIS. 1984. Black and white rhino introductions in north-west Zimbabwe. *Oryx* 18: 237-240.
- CUMMING, D.H.M. 1986. Chairman's Report. *Pachyderm* 7:1-3.
- CUMMING, D.H.M. 1987. Zimbabwe and the conservation of black rhino. *Zimbabwe Science News* 21:59-62.
- HERBERT, H.J. and B. AUSTEN. 1972. The past and present distribution of the black and square lipped rhinoceros in the Wankie National Park. *Arnoldia* 26:1-6.
- DU TOIT, R.F., T.J. FOOSE and D.H.M. CUMMING. 1987. Proceedings of African rhino workshop. *Pachyderm* 9: 1-32.
- HILLMAN, A.K.K. 1981. Towards the interpretation of aerial sample census data for rhinos. Pp. 78-91. In: CUMMING D.H.M. and P. JACKSON (eds.). *The status and conservation of Africa's elephants and rhinos*. Gland: IUCN.
- KERR, M.A. and R. FOTHERGILL. 1971. Black rhinoceros in Rhodesia. *Oryx* 11:129-134.
- MARTIN, E.B. 1987. The Yemeni rhino horn trade. *Pachyderm* 8: 13-16.
- MARTIN, E.B. and C.B. MARTIN. 1982. *Run Rhino Run*. London: Chatto & Windus.
- PILE, J.A. 1987. Editorial. *Zimbabwe Science News* 21:58.
- ROTH, H.H. 1967. White and black rhinoceros in Rhodesia. *Oryx* 9: 217-223.
- SHEELINE, L. 1987. Is there a future in the wild for rhinos? *Traffic* (U.S.A.) 7:1-6.
- WESTERN, D. and L. VIGNE. 1985. The deteriorating status of African rhinos. *Oryx* 19: 215-220.