

Although Zimbabwe, in common with most countries in Africa and elsewhere in the Third World, has many seemingly insurmountable land-use problems which must be resolved if indigenous resources are to be saved from extinction it has an enviable record in the field of indigenous resources protection. This has been achieved through public and private endeavour in joint ventures based on mutual confidence. Here the Zimbabwean non-Governmental Organisations have played a key role and the Department of National Parks and Wild Life Management is most appreciative of assistance rendered to it.



Dear Sir,

The Pesticide Impact Section has compiled a bibliographic computer database of books and scientific articles about the environmental side-effects of pesticides (including herbicides and fungicides) in the tropics. In the anticipation that this may be of interest to the readers of the *Zimbabwe Science News*, I give below further details about our database.

This database, called ENVIRON, has been designed to provide a rapid and comprehensive information service freely to scientists, farmers and agricultural administrators living in developing countries and working for international development organisations.

Gathered within ENVIRON is information which was previously widely scattered throughout the scientific literature. The wise use of such information will ensure that inefficient and environmentally damaging uses of pesticides are minimised.

Topics covered in ENVIRON include:

- pesticide toxicity to non-targets
- pesticide persistence and residues
- environmental fate of pesticides
- ecological impact of pesticides on non-target organisms:
 - evidence of mortalities
 - population changes
 - sublethal effects (e.g. animal behaviour)

ENVIRON can handle enquiries about the effect of pesticides on non-target organisms (including soils), after first specifying the pesticide (or pesticides), the target pest(s) or non-target organism(s), or a combination of these. The output consists of a list of references, each of which is followed by an indication of the contents of each paper and in some cases a relevant abstract. Depending on

the request we also attempt to synthesise the information available to aid the enquirer. There are no plans to provide an on-line facility for external users at present.

Yours sincerely,

Humphrey Q. P. Crick
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NOTES FROM SOCIETIES

Engineering Achievement Award

The Council of the Zimbabwe Institution of Engineers invites nominations from the public for the above-named award. Nominees do not have to be members of this Institution but the submission must be by a member of the Zimbabwe Institution of Engineers.

The object of the award is to provide public recognition of noteworthy engineering achievements in Zimbabwe with the two-fold aim of challenging and encouraging engineers to strive for professional excellence, and drawing public attention to the contribution the engineering profession makes to the quality of life.

The Award, to be presented in June each year, will cover achievements in every branch of engineering and may be in such fields as research, invention, construction or design, amongst others. The Award will comprise a certificate and an inscribed plaque which may be permanently fixed in a suitable position to record the achievement and the name of the recipient.

The Zimbabwe Institution of Engineers will sponsor the Award initially but is seeking additional sponsorship from interested parties.

Nominations for the Award, together with citations, should be forwarded to the Secretary, PO Box 660, Harare, on or before 31 March 1988.

P H Haviland Award

The Council of the Zimbabwe Institution of Engineers invites nominations from the public for the above named award, which may be made to any person who, in the opinion of Council, has made an outstanding contribution in the field of water engineering, irrigation, or the prevention of water pollution and allied fields. Such contribution may be either in engineering or in administration and may arise from outstanding work in a person's field of employment.

Nominations for the Award, together with citations, should be forwarded to the Secretary, PO Box 660, Harare, on or before 31 March 1988.

The Award shall consist of a plaque, framed in wood, and a cheque to the value of \$100.00

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THE RHINO CONSERVATION STRATEGY IN THE ZAMBEZI VALLEY CODE NAMED OPERATION STRONGHOLD

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Earliest records show that the Black Rhinoceros (*Diceros bicornis*) has existed in large numbers in the Zambezi Valley of Zimbabwe. Early explorers and hunters confirmed this in their diaries, i.e. Livingstone, Selous, Fairbridge, remarking that encounters with black rhino in the thickets (jesse) of the Zambezi Valley was a common, but dangerous experience. In 1943 Newby Tatham and the then Native Commissioner, Cecil Bisset recorded seeing many rhino in the Chewore area. And later again, Newby Tatham, in the company of Dr. John Wilds, a geologist, recorded seeing 20 individual rhino in two days walking in the same area.

During 1980-81 an aerial survey of all Parks and Wild Life Land within the Lower Zambezi Valley was carried out. Included in this survey was the Dande Communal Land; an area in Mozambique south of Cabora Bassa Dam - west of the Musengezi River and the southern Luangwa Valley and the northern section of the Zambezi Valley within Zambia. The number of carcasses observed during the survey indicated clearly that rhino poachers had already infiltrated the Zambian section of the Zambezi Valley. From mid to late 1970's reports received from Zambian Parks patrols confirmed a loss of two to three rhino per day in the Luangwa Valley, also confirming that the rhino horn trade was hardly diminishing.

Undoubtedly this must have had a devastating effect on the rhino densities and poachers were soon to find difficulties in locating sufficient rhino to make the incursions into Luangwa profitable. The highest densities of, and the most easily accessible rhino for these poachers are presently in the Zimbabwean Zambezi Valley. Considering these facts and that the eastern Zambezi Valley (Kanyemba area) has been a traditional trade route for ivory, gold and horn dating back to the 14th century, and that the local communities have been involved in this trade for generations, it was predictable that the rhino and to a lesser degree, elephant, in this area were soon to face a serious poaching threat.

During the middle of 1983, the first signs of rhino poaching were revealed. Local inhabitants in the north western Dande Communal Land began snaring rhino although some were shot with rifles. Over 30 rhino were known to have been poached during this period. A major anti-poaching effort was put into action and the situation was brought under control.

The Lower Zambezi Valley situated between Kariba on the west and Kanyemba in the east, some 15 000 km in extent, holds the last stronghold of a contiguous and viable black rhino population in Africa. Of this approximately 12 000 km are protected within the Parks and Wild Life Estate, comprising one National Park, Mana Pools, and four Safari Areas, Chewore, Sapi, Urungwe and Charara. The operation to save these rhino in this area is code

named Stronghold. For operational purposes there are six sub-sections, namely Charara, Rifa, Nyakasanga, Mana, Sapi and Chewore.

Following limited across-border incursions in the latter half of 1984 which increased in the early part of 1985, the struggle to save the rhino commenced in earnest.

STRATEGY

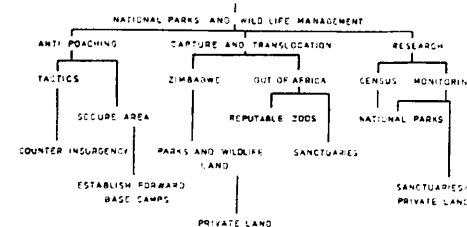
The strategy to conserve and protect the black rhino population has four dimensions and each one relates or depends either directly or indirectly to the other three. They are referred to in order of priority (Figs. 1-4).

1. Local Reaction

Within the Zambezi Valley, the area concerned is State Land, classified as Parks and Wild Life Estate, the authority for its administration being the Department of National Parks and Wild Life Management.

This particular dimension is broken down into three component parts:

LOCAL REACTION



(i) Anti-poaching

A prerequisite for the commencement of the anti-poaching operation is to structure strategy, tactics and other efforts along military lines. Combating poachers armed with automatic rifles is akin to an anti-guerilla type warfare. In the first instance the area has to be secured by intensifying ground coverage and establishing strategic forward basecamps. The anti-poaching operation relies directly on a manpower resource, suitably trained and equipped. This included meeting an individual's personal

needs, i.e. appropriate clothing, specialised patrol equipment, modern weaponry and good accommodation. Guaranteed salaries and field allowances must be ensured. National Parks personnel face the possibility of death whilst protecting the black rhino and therefore only dedicated, well-disciplined men should be deployed within the operational area. This is the key to the success of Operation Stronghold. Other Government agencies must also be called upon to give active and meaningful support.

(ii) Translocation

(a) To minimise the loss of animals to poachers, the second important component is the translocation of rhino out of the Zambezi Valley to other relatively safe areas within the Parks and Wild Life Estate where these animals have previously existed, e.g. Hwange and Matobo National Parks.

(b) Translocation of rhino to private game ranches where suitable habitat and security exists. Appropriate and reliable monitoring must be guaranteed thereby allowing the establishment of captive breeding herds. Once densities reach saturation, progeny will be returned to the rhinos' areas of evacuation when considered safe and secure.

(c) Translocation to other National Parks, suitable zoos and ranches outside of Africa, where the objective is to guarantee the security of the species and provide captive breeding units.

(iii) Research

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

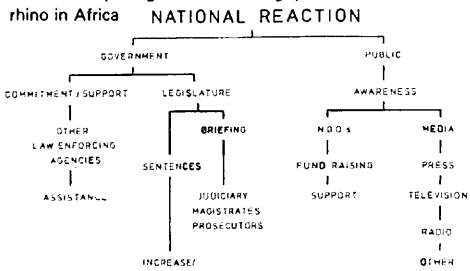
The translocation of black rhino also requires careful documentation and monitoring. In particular, adjustments to new habitats, the establishment of home ranges and the maintenance of breeding between limited numbers of animals needs investigation.

2. National Reaction

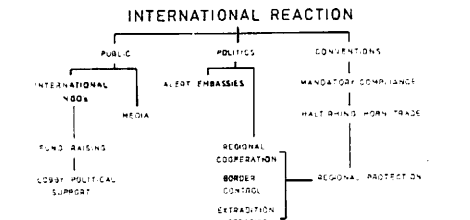
First considerations have to be based on the commitment and support of Government for the protection of the black rhino. Government alone holds the responsibility of ensuring the Department of National Parks and Wildlife Management maintains its ability to function. Support from non-government organisations should only be used to augment funds already allocated for capital and recurrent expenditure.

Legislation which is the second part of this dimension, has had to be brought up to date with the current situation. A major milestone was passed when the mandatory sentence for killing a rhino and the possession of rhino horn was increased from 2 years to 5 years. Members of the Judiciary, Police and other officials responsible for the legal processing of cases pertaining to rhino poaching, require to be fully briefed on the seriousness of the situation.

Contransvention of the specific section of the Act protecting the Black Rhino should not receive leniency and mitigating evidence not given credence. Evidence in aggravation should be lead at every opportunity with the relevant statistics depicting the diminishing population of black rhino in Africa



The last part of this dimension refers to the public reaction within Zimbabwe. Funding by conservation-orientated non-government organisations to support the field effort is invaluable and the public of Zimbabwe and the media have to be made aware of this crisis, with national outrage being the objective.



3. International Reaction

International politics is a key aspect of this dimension. Incursions of armed bandits entering into a Sovereign State from a neighbouring country is an act that must incite considerable debate at Head of State level as this poses a direct threat to national security. This debate should have as its objective international cooperation between the two countries concerned, to prevent these incursions and to deal with the matter as a regional problem. Nations in the region should be obliged to comply with international conventions that specifically protect the rhino and its habitat, e.g. C.I.T.E.S.

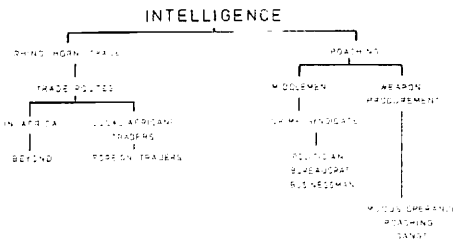
Outside the continent of Africa this issue requires to be brought to the attention of states directly involved in the trade of rhino horn, with political pressure being brought to bear upon such states to prohibit the trade. As this is an international environmental problem, it should be brought urgently to the attention of the international community.

As with the national media, continuous communication must be maintained with the international media as a matter of extreme urgency. They should be encouraged to visit the operational area on a regular basis and be exposed

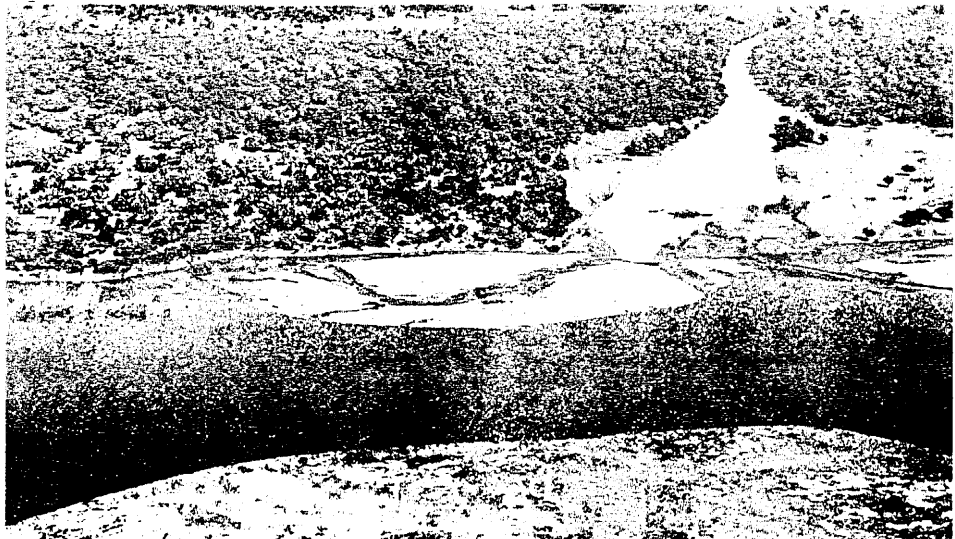
to the problem at first hand. Environmental issues receive exposed coverage and therefore the rhino crisis should be exposed and publicised at every available opportunity.

4. Intelligence

A systematic method of gathering intelligence on all aspects of rhino horn trade commencing at its source, i.e. poachers and their direct overseers and then finally where the horn is sold and processed, must be formulated. Approximately 60 000 rhino have been killed on the continent of Africa over the past 15 years. This represents a well structured and highly professional crime syndicate involving politicians, bureaucrats and businessmen who are obviously corrupt and care little for human lives or the economy of their respective countries, but are motivated by greed and personal ambition.



A well documented dossier on these organisations should be opened, thereby establishing a base on which the other three dimensions can effectively operate.



Sapi River confluence with the Zambezi. This shows how the delta has been swept downstream by the Zambezi. Riverine vegetation in the centre changes into mopane woodland in the extreme background. (Photo: C. Nugent).

A prerequisite to this is direct and continuous cooperation from international law enforcing and intelligence gathering agencies. A formal request should be put to foreign embassies of countries that actively support the rhino survival campaign to assist in this intelligence gathering effort.

CONCLUSION

Black rhino on the continent of Africa now face almost certain extinction and Zimbabwe is clearly in a position to prevent this tragedy occurring. Therefore each of the four dimensions of the overall strategy for conserving the black rhino must be fought with equal vigour and determination if we are to succeed. The predicament now facing the black rhino symbolises the true situation for conservation of African wild life. This state of affairs is an indictment upon conservation agencies and governments, clearly showing that they have failed to effectively implement their respective conservation policies and enforce the laws that protect wild life. The hope is that Zimbabwe's attempt to save the last remaining viable, natural population of black rhino from extinction will be the watershed for the reversal of this intolerable situation. Environmentalists of the world need to take cognisance of this desperate stand Zimbabwe is taking by actively associating themselves with the overall strategy.

ACKNOWLEDGEMENT

This article is published with the approval of the Director of the Department of National Parks and Wild Life Management.