MANAGEMENT OF BLACK RHINO IN ZIMBABWEAN CONSERVANCIES

Raoul du Toit*

Abstract - Over half of Zimbabwe's black rhinos are now on private land. The landowners are acting as voluntary custodians of these rhinos and the Department of National Parks and Wild Life Management retains overall control of them. The demographic and genetic viability of breeding groups on private land has been greatly enhanced through the formation of large conservancies. These have enabled the establishment of two major breeding groups and several smaller satellite breeding groups, which will be managed interactively according to metapopulation principles. Various management and security problems have been experienced; attempts to resolve these are now showing indications of success. The long-term success of the rhino conservation effort on private land will depend upon a creative fusion of commercial interests with local community interests.

INTRODUCTION

Of the 260-300 black rhinos still surviving in Zimbabwe, about 160 (55-60%) are on private land. These are the survivors and offspring of groups of rhinos (totalling 189) which were translocated mainly from the lower Zambezi Valley and mainly over the period 1986-1988. Prior to these translocations, the only black rhinos on private land were a few that strayed through ranches adjacent to wildlife reserves in the Doma area (northern Mashonaland) and the Matetsi-Gwayi area (northern Matabeleland).

The rhinos were translocated by the Department of National Parks and Wild Life Management (DNPWLM) in accordance with one of the four objectives of Zimbabwe's Black Rhino Conservation Strategy[1]; the relevant objective is "to develop translocated breeding nuclei elsewhere in Zimbabwe (i.e. outside the Parks and Wild Life Estate) and to maintain their genetic variability". The rhinos were moved to private land areas largely because there are no national parks, safari areas or other areas of State Land away from the national borders (and therefore less prone to incursions by Zambian poachers), which have suitable habitat and are adequately fenced to hold free-ranging black rhinos. In addition, DNPWLM faces a fundamental problem of insufficient manpower and funds to protect the extensive rhino ranges under its jurisdiction. Hence, any translocation of rhinos to other areas of State Land would merely aggravate this problem, by spreading the anti-poaching resources even more thinly.

The selection of private properties to receive black rhinos initially followed a somewhat arbitrary procedure, largely dependent upon the degree of interest which landowners displayed in acquiring these animals. As will be discussed, a number of problems have arisen as a result of this excessively *ad hoc* distribution process, but the overall programme has proved to be relatively successful.

CATEGORIES OF RHINO BREEDING AREAS

After poaching losses, natural deaths, and some redistribution of rhinos, the number of private land areas with black rhinos has decreased from 14 to 10; these areas now fall into three rhino management categories.

* National Parks/WWF Rhino Conservancy Project, P O Box CY1409, Causeway, Harare, Zimbabwe

- Intensive management facilities. These are small properties on which semi-tame rhinos are maintained through artificial feeding. There are two such properties: Imire Game Park (Hwedza area) and Chipangali Wildlife Orphanage (Bulawayo area). The rhinos were hand-raised, following deliberate separation from their mothers during capture operations in 1986 and 1987 (this practice has been discontinued). It has become apparent that there are serious constraints to the breeding of rhinos in these situations.

- Major breeding areas. Through direct translocations from State Land, and through redistribution of rhinos on private land during 1993, two relatively large breeding groups have been built up: 39 rhinos in the Save Valley Conservancy (south-east Lowveld) and 44 in the Bubiana Conservancy (West Nicholson area). These areas are showing good progress towards becoming Zimbabwe's "rhino factories".

- Satellite breeding areas. The other black rhinos on private land are in six separate groups of 2 - 29 animals. Unlike the large Lowveld conservancies, most of these areas are unable to carry significantly more rhinos, and there are inbreeding risks, so it is necessary to periodically move offspring to other areas.

"OWNERSHIP" OF BLACK RHINOS

In contrast to the situation in South Africa, the Zimbabwean landowners who received black rhinos were not required to purchase them and have no ownership rights; they are regarded as voluntary custodians. However, this does not mean that the rhinos belong to the State. All wildlife in Zimbabwe is *res nullius* (i.e. the animals belong to no-one) and it is the rights to usage of wildlife, rather than ownership rights, which are the crucial issue under the Zimbabwean legislation. A landowner is legally entitled to undertake a wide range of wildlife management activities on his land, including various forms of consumptive utilization, without the need to obtain specific approvals (e.g. hunting permits) from the Zimbabwean Government. For a small schedule of "Specially Protected Animals" (Parks and Wild Life Act, 1975), which includes both black and white rhinos, the landowners' usage rights are considerably more restricted and any consumptive utilization, or disposal of products from these animals, is subject to the issue of the relevant permits by the Director of DNPWLM.

Unfortunately, some landowners in Zimbabwe are confused about "ownership" and periodically agitate to acquire outright possession of the rhinos with which they have been entrusted. Apart from the fact that this is not legally feasible, the landowners did not buy the rhinos, and there has been an ongoing need for firm intervention by DNPWLM to reduce stocking rates and to remove rhinos from insecure areas; such action would be impeded if there were ownership complications. As far as non-consumptive utilization is concerned, the private rhino custodians are given every encouragement to use the rhinos as tourist drawcards.

MANAGEMENT PROBLEMS FOR BLACK RHINOS ON PRIVATE LAND

The introduction of the rhinos was accompanied by an unacceptably high mortality rate. Monitoring of the rhinos has not always been adequate, so the stage at which some rhinos died is not known with certainty. However, it appears that the overall mortality rate within the first three months of translocation has been about 15%. The loss of rhinos during this phase has been particularly severe in the Midlands area. Reasons for these mortalities include the following:

- Difficulties in habitat adjustment experienced by rhinos which were moved from the arid entropic Lowveld (sweetveld) areas to dystrophic sandveld (sourveld) areas, such as the Midlands.

- Capture of rhinos at the time of the year when it suited the capture units rather than the rhinos. Most operations were undertaken in the mid-late dry season, when browse resources were most limited and the rhinos were therefore in poorest condition; the rhinos

faced added nutritional problems when moved to habitats that they were not familiar with and where they could not find an adequate range of palatable, non-toxic browse species.

- Poor boma management on the part of several landowners, particularly with regard to their failure to provide rhinos with a sufficient quantity and diversity of fresh browse.

- Traumatic nasal damage suffered by a high proportion of rhinos which knocked their horns off or which were young rhinos, with relatively fragile nasal bones, who fractured these bones by bashing their crates or bomas. These problems have been reduced by dehorning and by the administration of long-acting tranquilizers.

- Exposure of a group of rhinos to creosote in a rhino holding facility near Harare, which was constructed of treated poles; this negligence appears to have led to serious liver lesions and to have precipitated haemolytic anaemia crises in at least four rhinos which subsequently died on private land.

- Intraspecies fighting in some situations where males were added to areas where previously introduced males had already established home ranges.

For the rhinos that survived the initial phase of translocations and release, additional problems have arisen due to either too much fencing or too little fencing. In the Midlands, which received 66 (38%) of the 174 animals moved from state land over the period 1986-1989, the miombo woodlands and low-diversity vegetation along the Great Dyke have proven to have a low carrying capacity for black rhinos (a safe stocking rate is thought to be about 1 rhino per 15 km^2). This inherent ecological constraint is exacerbated by the fact that the area is comprised of a number of relatively small ranches (average size is about 7 000 ha), with a large amount of electrified boundary fencing which has restricted the dispersion of the rhinos. The post-release mortality rate in this area has remained high, depressing the net population growth to under 3% per annum, compared with growth rates of 7-10% per annum which have been achieved in the large Lowveld conservancies.

The problem of too little fencing has arisen in areas such as Chipizi (southern Matabeleland) and Gwayi (northern Matabeleland), where rhinos have dispersed off the ranches onto which they were introduced, and became scattered to the extent that their monitoring and protection were totally inadequate.

SECURITY PROBLEMS ON PRIVATE LAND

At least 30 black rhinos have been poached on private land over the period April 1989 to December 1993. In addition, over this period four black rhinos have been found dead with no evidence of poaching but with their horns missing. In the worst poaching cases (such as the total eradication over a period of about 8 months of a group of 12 black rhinos on Ruwanzi Ranch, Karoi district), there has been evidence or at least strong suspicion of staff involvement. The temptation of inadequately supervised and poorly motivated staff to engage in poaching is the Achilles heel for rhino conservation on private land.

Another weakness that requires ongoing attention is a lack of cooperation, and sometimes outright antagonism, on the part of law-enforcement agencies who are resentful or suspicious of "private armies". Poor coordination between agencies such as the Zimbabwe Republic Police, the Zimbabwe National Army, the Central Intelligence Organization and DNPWLM has been one of the major reasons for Zimbabwe's ineffectiveness in dealing with the poaching crisis. The recent formation of a Joint Operations Command to coordinate antipoaching should help to alleviate this problem, provided that the coordination extends to the private sector. A committee of private rhino custodians was formed in mid 1993 (under the auspices of the Zimbabwe Wildlife Producers' Association) to deal with such issues but so far this committee has been disappointingly inactive.

THE ROLE OF CONSERVANCIES IN RHINO CONSERVATION

The formation of "rhino conservancies" in 1991 was a response to security problems as well as to the rhino management problems outlined above.

To create a viable breeding group of black rhinos, it is obviously essential to have an adequate number of animals with a reasonable sex ratio, living within a sufficiently large area of suitable habitat, to permit rapid expansion of the founder population.

Computer simulation models[2] show what is likely to happen if rhinos, as a long-lived species with a relatively slow rate of reproduction, are reduced to small isolated populations (with under 30 in each). Such models suggest that these populations would have a good chance of expanding and surviving for long periods despite some reduction in population growth rates due to inbreeding depression and random fluctuations in sex ratios, age structures and other demographic factors. However, if each of these small populations is unable to expand owing to inadequate carrying capacity or poaching, genetic variation within the populations will be rapidly eroded through inbreeding and other genetic processes, and the species will not only lose its capacity for continued adaptive evolution but will eventually accumulate lethal genetic traits and die out. Hence, some simple principles to follow in setting up a rhino breeding programme are:

- start each breeding group with 30-40 founders;
- allow these to expand as rapidly as possible to over 100 through uninterrupted breeding;
- periodically exchange breeding animals between some separate breeding groups (i.e. maintain "metapopulations" through regulated gene-flow).

To prevent density-dependent constraints on population growth, a maximum stocking rate of 1 black rhino per 10 km² is prudent for the Lowveld areas, reducing to 1 per 15 km² for the Midlands.

None of the individual ranches which received black rhinos is large enough to carry a founder group of 30 rhinos which could expand to over 100 (at a stocking rate of no more than 1:10 km²). It was therefore necessary to amalgamate groups of ranches to form suitable refuges, each totalling over 1 000 km² in extent. Hence the formation of the Lowveld "rhino conservancies".

As regards security, the pressure of commercial rhino poaching activities requires a comprehensive, well co-ordinated antipoaching programme, instead of the disjointed efforts of individual custodians of black rhinos. The staffing and equipping of antipoaching units is easier and less costly if done as an overall conservancy initiative. The more properties involved, the tighter will be the overall detection screen and the quicker will be the reaction to any poaching incursions. Apart from these advantages in terms of conventional antipoaching, conservancies have the potential to achieve constructive interaction with neighbouring Communal Land communities through mutually beneficial projects. They can thereby develop incentives for local people to report rhino poachers.

A simplistic paramilitary approach to rhino protection has failed dismally in virtually all areas where it has been attempted. This has largely been due to a lack of funds required to sustain a sufficiently intensive war against poachers. In view of this, the prospect of combining a commercial conservation approach with a programme for community involvement has aroused considerable interest amongst international conservation agencies. As a collaborative project with the Department of National Parks and Wild Life Management, substantial funds have been allocated by the Beit Trust via the World Wide Fund for Nature (WWF) to consolidate the rhino breeding programme in the Lowveld conservancies. This project was implemented in the belief that:

- the Zimbabwean Government regards wildlife ranching as a legitimate primary land-use in the arid Lowveld areas;
- the Zimbabwean Government appreciates the impracticality of peasant resettlement schemes in these marginal farming zones;

- the Lowveld conservancies can rapidly develop major wildlife industries, based on ecotourism, in which the rhinos can become assets rather than financial liabilities and their protection will therefore not depend upon ongoing donor support.

The Bubiana Conservancy (1 275 km²) and the Save Valley Conservancy (3 330 km²) now have black rhino populations of sufficient size to meet the genetic and demographic criteria for medium-term viability. Other conservancies, such as the Chiredzi River Conservancy and the Midlands Conservancy can usefully function as satellite breeding areas. There has been no rhino poaching in the Lowveld conservancies since 1991, and, elsewhere on private land, there has been no reported rhino poaching during 1994.

The lower poaching pressure on private land as opposed to DNPWLM land has hitherto been related more to distance from Zambia than to any major differences in antipoaching effort. The geographical factor pertains largely to the increased likelihood that Zambian poaching gangs will be detected as they penetrate deeper into Zimbabwe. This detection probability is enhanced by the fact that private ranches have inherently good detection screens, in the form all manner of staff, landowners, visitors, etc. Because this is their strength, and also because early detection of poaching activity is more important than massive post-poaching reaction, the conservancies must place emphasis on improving ground coverage and intelligence systems. The engagement and training of more antipoaching staff (to achieve a recommended minimum manpower density of at least one scout per 2 500 ha) has undoubtedly helped to control rhino poaching, but equally important factors are as follows.

- Efforts made by conservancies to improve relations with surrounding peasant communities and to thus create a social climate which is less conducive to poaching activity.

- Establishment of a reward system to pay significant amounts for information that helps with the arrest or eradication of poachers (up to R4 500.00 is offered in each instance).

- Dehorning of most of the rhinos.

- The implementation of a rhino monitoring system, whereby efforts are being made to regularly account for every rhino on private land, and ranch staff are therefore made aware that any losses will be notice.

THE FUTURE

It would be overly ambitious to suggest that all rhino poaching in conservancies can be curtailed. There are bound to be opportunistic forays by commercial poachers, and snaring by subsistence poachers, leading to the loss of some rhinos. However, there are encouraging indications that a holistic approach will ensure that the poaching attrition will be kept to a level which is below the natural growth rate of the rhino populations. As far as biological management issues are concerned, the initial mistakes that were made in the placement of rhinos on private land are being corrected. Following this experience, the natural growth rate and genetic diversity of rhino populations in conservancies can now be maximized through the interactive management of the large breeding groups and the satellite breeding groups.

References

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