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The case for dehorning the black rhinoceros in Namibia

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The decline of black rhinoceros populations elsewhere in Africa has elevated the importance of remnant populations in Southern Africa, now believed to account for a quarter of the total number in Africa.[1] Only one sub-species is known to occur in Namibia, which numbers approximately 400, or 97% of the world population of *Diceros bicornis bicornis*.

The translocation of rhinos to Etosha National Park from the Kaokoveld in 1970 – 1972[2] created the largest population in any national park, estimated to number 300 by the end of 1988. The remaining 100 individuals are in the Kaokoveld in north-western Namibia, an arid area which lost all formal conservation status in 1970 as a result of the implementation of the Odendaal Commission's recommendation to allocate the land to the indigenous people.[3] None of the initiatives by the Directorate of Nature Conservation, backed by strong supporting pressure from local and international conservation organizations, has succeeded in creating any reserve in this area of prime habitat for desert-dwelling black rhinoceros and elephant.

The first signs of intensive poaching of black rhinos in Etosha and the Kaokoveld appeared in 1977, the start of a period of severe drought and escalating civil and military unrest in the region. At least 40 rhinos have been poached in Damaraland, the political designation of the southern half of the Kaokoveld. The total population in Kaokoland, the northern equivalent, has dwindled from around 150 in 1971 to six in 1989.[4–6] Illegal hunting was finally brought under control by governmental and non-governmental conservation agencies in 1983. This achievement has not been equalled in the rest of the continent, so that the number of black rhinos in Africa has declined from 65 000 in 1970 to less than 4000 in 1987!

Early in 1989, poaching flared up again in the Kaokoveld and Etosha, and nearly seven per cent of the population was lost within five months. Political processes under way in Namibia resulted in the withdrawal of military and police forces from the north of the territory, which was followed by a wave of illegal hunting. The end-user price of rhino horn had meanwhile increased to over US$20 000 per kilogram, arms and ammunition were freely available, and other sources of horn were becoming limited, thus setting the scene for organized poaching on a scale not experienced before.

What are the options open to a governmental conservation authority regarding the protection of a rhino population? Given that the objective of the Directorate of Nature Conservation is to maintain species diversity in the various ecological zones, the following may be considered:

Protection through legislation

Black rhinos are legally classified as a specially protected species, so that no hunting or trade in rhino products is allowed, in compliance with the international moratorium on trade in horns or any other part of a rhino established in 1976.[7] This form of protection applies to all individuals, regardless of the conservation status of their home range. The species has been afforded the highest conservation status internationally and is regarded as one of the 10 most endangered mammals on earth. Penalties of a maximum of up to 20 years' imprisonment and/or a fine of up to R100 000 may soon be introduced in Namibia. Similar legal status, heavy fines and the authorized shooting of poachers in some countries have nevertheless not halted the decline in population.

Strict protection *in situ*

A logical step to safeguard black rhinos is to protect their habitat and control human access, which is done by creating reserves and parks. Being found inside a controlled area with a firearm is in many cases legally equivalent to poaching and is punishable, regardless of whether or not an animal was shot. By contrast, anybody found in possession of a firearm in Damaraland cannot be prosecuted unless clear evidence points to the intent to hunt, or the actual hunting of, a protected species. There is furthermore no control by any law-enforcement agency over the number of people allowed into the area. This is one of the main reasons why the Directorate of Nature Conservation has tried repeatedly to create a reserve in the Kaokoveld.

A further option is to increase the anti-poaching effort by using special teams equipped with aircraft, trackers, radios, vehicles and, in Namibia, also horses and donkeys. It is not clear whether the much publicized semi-military campaign against poachers in Zimbabwe has reduced poaching significantly. Public opinion in Namibia seems to be in favour of less aggressive campaigns, especially in the present climate of a fragile peace after two decades of civil instability in the north of the territory.

Two anti-poaching units were established in Namibia in 1988, one specifically to protect black rhinos in Etosha and the Kaokoveld. The problems of finding poachers and black rhinos in the dense subtropical vegetation of the approximately 10 000 km^2 Zambezi Valley in Zimbabwe are repeated in the roughly 75 000 km^2 distribution area of rhinos in Namibia, where the mean density of the animals is approximately one per 200 km^2. Promising results have nevertheless been achieved, particularly in the prosecution of poachers, but the actual prevention of further poaching is difficult to assess.

Translocation to safe sites

Reserves without black rhinos and no present poaching problems cannot be regarded as potentially safe for the rhinos, as their presence becomes the attraction if they are moved there. There is little chance of establishing a new population and keeping it a secret. Effective surveillance measures, which have proved to be expensive, will have to be extended to each new locality. Establishing satellite populations, even on private land, is nevertheless a viable option and was accepted in principle by the Directorate of Nature Conservation in 1988. One such population has already been established, and further areas are under consideration.

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There are complications in moving black rhinos from one area to another, apart from obvious considerations of habitat suitability, carrying capacities and logistical constraints. Not enough is known about the territoriality of black rhinos to be able to predict the fate of adult bulls translocated to an area already containing bulls. Adding new individuals to an established hierarchy might well have disastrous consequences. Most new populations will have to be founded in small reserves, and may have to be manipulated to ensure some degree of genetic exchange.

Dehorning

While several parts of a rhino's body are believed (by some) to be of medicinal value, the horns are the most sought-after items.[8] Rhino horn is composed of fibrous epidermal tissue analogous to hair, and does not have a bone core, nor nerves or blood vessels.[9] The horns are used in defence and social encounters, grow continuously, and are frequently broken off, at least in Namibia. Large carnivores, notably spotted hyaena, have been implicated as significant predators of black rhino calves in Natal,[10] which may account for the concern in some quarters about removing horns.

No study has been done to date on the growth of rhino horn, but individuals who have lost entire horns have regrown them to the original length in 3 – 5 years in Namibia (G.L. Owen-Smith and A.D. Cilliers, pers. comm., and personal observation). It is likely that regrowth after artificial removal will occur over a similar period.

The Directorate of Nature Conservation, in conjunction with the staff of non-governmental conservation agencies, has recently dehorned a number of black rhinos in Damaraland. This has precipitated considerable public debate over the ethics of removing horns from free-living rhinos. The objective of the dehorning programme is to deter poaching in an area where it had flared up and could not be controlled by other measures. The chief concern is to enhance the chances of survival of individual black rhinos. There is no guarantee that this programme will be effective as it has never been attempted before, and it is too soon to judge the outcome.

Public concern has centred on two main themes—the effectiveness of the method to prevent poaching, and the biological consequences for the individual. The advantage of dehorning is that an individual is rendered less attractive to a would-be poacher. In forcing the possible poacher to look for alternatives and thus spend more time in the hunting area, the dehorning is likely to increase the chances of his being caught. Poaching a rhino with the bulk of its horn removed brings reduced benefit to the poacher, who has to evaluate the risks of being apprehended against a smaller potential return for his efforts. Arguments that black rhinos are shot on sight before the poacher has examined the horns might not apply in the open terrain in Damaraland. Cases where virtually hornless calves were shot along with adults may indicate that poaching is truly indiscriminate, or simply that calves refuse to leave their dead mothers and are shot to prevent interference. Some black rhino calves similarly refuse to leave immobilized adults during capture operations (A.D. Cilliers and B.D. Loutit, pers. comm.)

The biological consequences of dehorning are unknown, and were part of the risk involved in the operation. The only occasions known in Namibia where predators have killed rhino calves were when the accompanying adult had died from other causes. Preliminary results of research on black rhinoceros in Etosha indicate that the area in the park with the highest density and largest clans of spotted hyaenas also has the highest recruitment of black rhino calves. No evidence of predation on rhino calves has been recorded in 10 years of monitoring in Damaraland (B.D. Loutit, pers. comm.), where large predators are virtually absent in the area where the rhinos occur. No serious aggression between black rhinos has been recorded in Damaraland (B.D. Loutit, pers. comm.), although fighting between bulls is common in Etosha (personal observation). At least two adult bulls have been killed in intraspecific fighting in Etosha since 1983 (A.D. Cilliers, pers. comm.), and abnormally high densities following translocations resulted in heavy mortalities in the 1970s.[11] One adult bull in Etosha lost its horn in fighting but maintained his dominant status at Okaukuejo waterhole in subsequent disputes even without his front horn (personal observation). The very low density of black rhinos in Damaraland and the numerous small waterholes should, however, reduce the possibility of aggressive behaviour.

The decision to dehorn was therefore taken in the absence of strong evidence of likely detrimental effects. The four major options to provide protection mentioned above have thus been taken in a part of Damaraland subject to intensive poaching. Regular patrols and the successful prosecution of previous cases did not deter the poachers. Sub-adult black rhinos, which were known to be wandering over a large area and could not be protected by the means available, were captured and moved to a safe site. Adults which could be reached by the heavy trucks needed for translocations were likewise removed, but some had to be dehorned on site. In all cases the known movement pattern of each individual rhino was taken into account before the decision either to move or dehorn it was made. As some individuals could not be moved, the future status of the group had to be considered, so that the remnant population should have a balanced age and sex structure.

Dehorning, as only one aspect of the protection strategy, has unfortunately been publicized as an ethical or moral dilemma, instead of as the drastic step to increase the individual's chances of survival that it is. The Directorate of Nature Conservation proceeded in good faith, without the luxury of time to consult public or professional opinion. Any decision to repeat the exercise will depend on the success of the first operation and information on horn regrowth and other biological consequences obtained in future. This is not the right time to be agonizing over the ethics of dehorning, which by itself contributes nothing to the fortunes of the black rhino population. Old, accepted conservation practices have clearly failed to protect the rhino, and imaginative alternatives deserve a fair trial. Irresponsible public pressure of the wrong kind could stifle innovation when we need it most.

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