

N7/3/1

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THE ECOLOGY OF THE DESERT-DWELLING ELEPHANTS,  
(7) BLACK RHINOCEROSES AND GIRAFFES OF WESTERN  
KAOKOLAND AND DAMARALAND, SOUTH-WEST AFRICA.

PROGRESS REPORT NUMBER 4 : JUNE 1982

by

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OBJECTIVES

In the western desert regions of Kaokoland and Damaraland in S.W.A. elephants, black rhinoceroses and giraffes survive under environmental conditions atypical elsewhere for them. These animals occupy a seemingly inhospitable desert habitat, are locally endangered and occur in small numbers. The first priority of this study is directed at the acquisition of the relevant data necessary for formulating those management and conservation strategies which will ensure the survival of these wildlife populations. Secondly, this study also aims at establishing whether these populations are ecologically discrete and restricted to the desert areas, and thirdly what adaptations to desert-living they exhibit.

REVIEW

The field work for the study commenced in June 1980 and the first three months were taken up by solving logistic problems. Prior to June 1980, background research on literature, techniques, etc., was done in Pretoria. The major field work started in September 1980, and the first observations were aimed at establishing the whereabouts, population structure and initial movements of the relevant animals. From a practical viewpoint most of the active research is concentrated on the elephant population, but data are gathered on both the giraffe and black rhinoceros populations as and when these animals are encountered. Up to January 1982, ground and aerial surveys revealed 365 elephants, 30 black rhinoceroses and 315 giraffes in Kaokoland and Damaraland. The structure, stability and distribution of these groups was determined

as accurately as possible. Monthly aerial surveys commenced in October 1981 and in August an elephant bull was fitted with a radio collar for the monitoring of movements.

#### RECENT PROGRESS

Observations were continued on activities, vegetation utilization, feeding, habitat preferences, drinking frequencies and defaecation. Monthly aerial surveys provided valuable information on the movements and locations of the elephants. In May 1982 an elephant bull was immobilized in the Hoanib River for water retention tests. A complete set of measurements and dung samples was also obtained. The elephant was also successfully marked with a plastic tail band, which proved to be more practical than a neck band. The previous bull, marked with a neck band, only supplied limited information, as it broke its collar in December 1981. The neck band was not conspicuous. In contrast, the tail band is very conspicuous and various people have up to now helped to report the movements of this elephant. After numerous attempts, dung production over a period of 24 hours was obtained from one bull. The total amount being 140 kg wet weight. This will provide valuable data on the daily food consumption of these elephants.

Meetings were held with various persons, to inform them about the present situation in the study area and the suggested conservation priorities for these areas. Cases of illegal hunting were reported to the Department of Agriculture and Nature Conservation of S.W.A. Assistance was given to their personnel in finding carcasses and evidence. At least two incidences of suspected potential poaching were stopped by the presence of the researcher in the area.

In March-April the long awaited rains came, which brought relief to all the animals and caused changes in the feeding, movements and drinking frequencies of the elephants. After the rains the elephants' condition improved in a remarkably short time and mating behaviour was also observed.

#### STATUS

Continuation of ground and aerial surveys indicated a total of 333 elephants, 317 giraffes and 33 black rhinoceroses in the whole of Kaokoland and Damaraland. As far as the elephants are concerned, their

numbers showed a decline. From carcasses found a total of 32 elephants had died. Two died of unknown causes and 30 were shot illegally. Of the 32 that died, 14 belonged to the desert elephant population and it included the only calf that was born last year. There is some evidence that the calf died as a result of being chased by vehicle for a long distance in the heat. Local Hereros will appear in court in due course for the massacre, which was discovered during one of our aerial surveys and reported to the authorities. This brings the desert elephant population down to 70 individuals. No new calves were born. The number of adult desert bulls is down to 7 and this is a matter of great concern, as they can be eliminated in one poaching spree.

The status of the giraffe has remained stable, but another six rhinoceroses are known to have been shot while four previously unknown black rhinoceroses were encountered.

#### MOVEMENTS

Movement patterns changed with the abundance of food after the rains. The movements were directed towards areas with an abundance of grass. Generally the desert population showed two movement patterns, the one group going west to the Hoanib Flood Plains and the other group moving north to the Orumborombonga area. A month after the rains, the group at Orumborombonga moved back to their original home ranges in the Barab, Aub and Uniab Rivers. The group in the Hoanib Flood Plains is still stationary due to the large amounts of grass and water in this region. No east-west migration occurred.

#### FEEDING

Feeding preferences of elephants changed abruptly after the rains when there was a total change from browsing to grazing. During the rainy season the food consisted almost entirely of grass and annual herbs, but with the onset of the dry season their feeding habits are gradually changing back to browsing.

#### APPRAISAL

The Administrator-General of S.W.A. has declared that steps will be taken to protect these elephants in the near future. However, at the moment

illegal hunting is continuing at an alarming rate due to the lack of control in these areas. As mentioned in the previous report, it is of the utmost importance for the survival of the desert elephants, to control all traffic, official or private, in the Hoanib River and the area south of it. Only in this way will we temporarily stop the decline in a part of the desert population until these areas can be declared as conservation areas with the proper control and management. Apart from illegal hunting, disturbance by vehicles is a less detectable but probably also a serious cause for the decline in elephant numbers. Because of the narrow gorge in which the Hoanib River flows, any vehicle driving down this river can cause an immense disturbance by chasing the elephants (deliberate or not) for distances up to 30 km (this happened on three known occasions with various vehicles). During the heat, this can cause the death of the calves, especially if they have not drunk for several days and are being chased away from the waterhole. This may account for the apparent low reproduction of these elephants.

The vastness and inaccessible nature of the area makes it very difficult to patrol efficiently, even if there was adequate personnel. In anticipation then, of declaring these areas as nature reserves, the following proposal is made as a preliminary measure to stop the present drastic illegal hunting and disturbance:

Because of the mountainous terrain all vehicles are forced to use one of six routes to enter the western course of the Hoanib River and the area south of it. All six of these routes, at some stage, pass through narrow gorges (the widest being 150 m and the others less than 50 m) where there is no bypass. As most poachers (local or otherwise) make use of vehicles, it is proposed that vehicle -proof barriers be erected at these six points. The barriers can be erected by planting pieces of railway line upright across the width of the narrowest part of the various gorges. In order to stop any vehicle effectively, these poles need only be 0,75 m high and spaced 1,5 m apart without any interconnected wires or poles. This will not restrict movement of any animal and will not be damaged by flood waters. By concreting these poles in the ground they will be virtually indestructible. The advantage of these vehicle-proof barriers are as follows:

1. By closing down these six points the whole western Hoanib River, the area south up to the Uniab River as well as a portion of the Skeleton Coast Park, will be effectively protected against any unauthorised vehicle.
2. The animals in these areas will be protected from virtually all poachers and disturbance.
3. The proposed barriers will not restrict the movements of any animal.
4. Although the local people have up to now largely avoided the proposed enclosed area, the barriers should be acceptable to them as it will not stop their movements (on foot or on horseback, as is their tradition) or that of their livestock.
5. Fewer personnel will be needed to control these areas and it will relieve the work pressure on the present personnel.
6. The proposed barriers will be relatively cheap, compared to extra personnel, vehicles or fences.
7. The barriers will require no maintenance.
8. With a small capital outlay and little effort a very large area can be effectively controlled.

The area enclosed by the proposed barriers is uninhabited and unutilized at the present moment and of no economic importance. The local authorities can only benefit from such a step in the long run by controlled tourism and game utilization. Unofficially, the Damara Government in principle is not against such a move. Access to the area can be through the Skeleton Coast Park, where there is proper control or through key-controlled gates in the east. The only other eastern access to this area is via the Uniab River but this route is partially protected by the Skeleton Coast Park in the west and the veterinary fence in the east. In addition this route is known to few people and extremely difficult to traverse.

FURTHER RESEARCH ACTIVITIES PLANNED

In the next six months research will continue on the status, population structure, movements, activities, feeding, habitat utilization and various other ecological aspects of the three species being studied. Monthly aerial surveys will be continued and a programme to establish the dry season water retention of the elephants is planned for November 1982. Comparative studies will be done on the dung production and vegetation utilization of the desert population and the eastern population.

ACKNOWLEDGEMENTS

This study cannot be done without the appreciated co-operation of the Department of Agriculture and Nature Conservation of S.W.A. Therefore I want to thank the following members of that agency for their invaluable assistance and time: The Director Mr. P. Swart, Mr. J. Lensing, Mr. and Mrs. R. Loutit, Mr. and Mrs. P. Bridgeford and Mr. J. Meyer. I also must thank the following members of C.D.M. for their continuous assistance and help: Mr. H. van der Westhuizen and especially Mr. and Mrs. C. Britz. Thanks are due also to Mr. C. Walker and Mr. P. Joffe of the Endangered Wildlife Trust for the aerial surveys and especially to the S.A. Nature Foundation for financing this study. My special thanks to the project leader, Prof. J. du P. Bothma for all his help in ways too numerous to mention.

Proposed vehicle-proof barriers and area protected by the barriers

