

## THE ADAPTATION OF WILD ANIMALS TRANSLOCATED TO NEW AREAS IN SOUTH WEST AFRICA

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### INTRODUCTION

The Etosha National Park, in its present form, is 2,227,000 ha in extent. About 25 per cent of the total surface area is taken up by the Etosha Salina. The greater portion of the Park is a flat inland plateau, although the extreme western part comprises a broken landscape consisting of ridges interlaced with drainage lines. The vegetation is a typical arid tree or shrub savanna with steppe along the edges of the pan. The drainage lines are open grasslands. The eastern, western and southern boundaries have been gameproof fenced, while the northern boundary is being stock-proof fenced.

When considering wild animal introductions, unless natural ecological barriers exist the fencing of boundaries is an essential prerequisite, provided the ecological requirements of the species concerned are met within the fenced area. The introductions should in every case go hand in hand with sound management practices.

Three rare and threatened animal species, namely the black rhinoceros (*Diceros bicornis*), the roan antelope (*Hippotragus equinus*) and the black-faced impala (*Aepyceros petersi*), have been in imminent danger of becoming extinct. The black-faced impala has a distribution limited to north-western South West Africa and south-western Angola and is a distinct species from the widely distributed common impala (*Aepyceros melampus*). These species to the Etosha National Park (Hofmeyr, 1973; Hofmeyr & de Bruine, National Park. Outside the Park they had become confined to some of the most remote and rugged areas of the country, and even there they were not considered safe from the onslaughts of man.

With the aid of modern technology it was possible to launch capture operations in these areas and over a period of three years the Division of Nature Conservation and Tourism has successfully translocated these rare species to the Etosha National Park (Hofmeyr, 1973; Hofmeyr & de Bruine, 1973; Hofmeyr *et al.*, 1973). Apart from the above introductions a total of 85 eland (*Taurotragus oryx*) were captured and moved in August 1972 to the

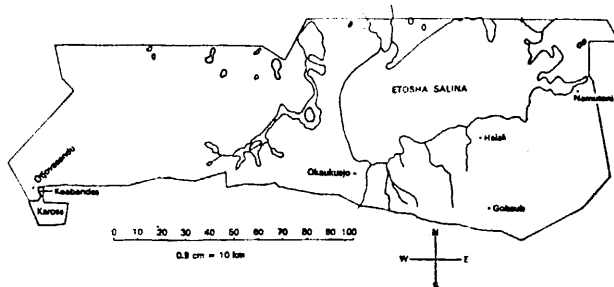


FIGURE 1 Etosha National Park, South West Africa.

newly proclaimed Waterberg Plateau Park. In addition, springbok (*Antidorcas marsupialis*), plains zebra (*Equus burchelli*), gemsbok (*Oryx gazella*) and red hartebeest (*Alcelaphus buselaphus*) have been caught throughout South West Africa and sold to farmers for restocking purposes.

The success of these operations cannot be measured by the percentage of survivals only, but to a larger degree by the successful adaptation and colonization of the species in its new surroundings. In most instances it is too early to ascertain the success of the introductions onto farms. The Waterberg Plateau Park is a well known reservoir for eland, and it is today one of the last strongholds for this species in South West Africa. Few problems are therefore envisaged with the adaptation of the eland introduced.

The following is an account of the knowledge gained and observations made on the adaptation and colonization of the species released in the Etosha National Park. The prime objective was to establish one or more breeding nuclei in the most suitable localities. Such aspects as past status and distribution outside and within the Park, habit evaluation, ecological requirements with regard to food, water and shelter, social behaviour of the species concerned, general management procedures, predator-prey relationships and disease had to be taken into account. At Otjojasandu (Figure 1) a special paddock approximately 15,000 ha in extent (which includes Koabendes 765 ha and Kaross 14,300 ha) was enclosed with a game-proof fence. Several of the rhino, the majority of the black-faced impala and all the roan antelope were released in this area. Every attempt has been made to keep this paddock free of large predators. The Koabendes-Kaross paddock is also frequented by giraffe (*Giraffa camelopardalis*), eland, gemsbok, plains zebra and mountain zebra (*Equus zebra hartmannae*).

### THE TRANSLOCATED SPECIES

#### *The black rhinoceros*

The capture of rhinos was preceded by a detailed study on the ecology and

status of this species in South West Africa (Joubert, 1971; Joubert & Eloff, 1971). The findings revealed that only a small number were present in the Park at the time, the main concentration being in the vicinity of Otjovasandu. Solitary rhinos were encountered in the Okaukuejo area, while a small group was resident at Gobaub (Figure 1). A census conducted in 1966 (Joubert, 1971) revealed 90 rhinos for the whole territory, 17 per cent of which occurred within the Park.

Following the release of two rhino during trial operations, an additional 37 rhinos have been set free between 1970 and 1972, of which 13 were released at Halali, 4 in the Okaukuejo area and 20 in the Koabendes-Kaross paddock (Figure 1).

To avoid aimless wandering, especially in waterless areas, the rhino were kept in wooden constructed bomas for a variable period. They were released one by one over a period of a few days. Several animals frequently returned to the bomas, where water was available. They showed considerable respect for fences unless provoked and on no occasion did they attempt to leave the Park and return to their original home ranges.

The rhinos translocated to Kaross had to be confined to the bomas for an extended period (sixty days), and once released the majority did not disperse but remained in the vicinity of the bomas. Several individuals were involved in mortal combat, which took place two to ten weeks after being set free. Four animals (three bulls and one cow) were known to have succumbed from fatal wounds. A heifer died of an unknown cause. In one instance it was necessary to recapture a troublesome bull and transfer it to the Okaukuejo area. Although there was a resident population totalling approximately seven animals, fighting only developed between the rhinos introduced. Conflicts between black rhinos released in the Wankie National Park have also been recorded by Herbert and Austen (1972). The prolonged captivity of rhinos should be avoided wherever possible. A captivity period of approximately ten days was found to be the most suitable.

Because of the black rhinos' solitary and elusive nature and the tendency to confine themselves to thickets and rocky outcrops, it has been a particularly difficult task to locate them and keep track of their movements. Although initially fairly concentrated, the rhinos released at Halali have become dispersed over an area of 1,500 km<sup>2</sup> and it appears that the majority have settled either singly or in pairs in the vicinity of permanent waterholes. The arrival of two calves was observed at Kaross and recently the tracks of a young calf were noticed in the vicinity of Halali.

Attacks by lions (*Panthera leo*) on adult rhinos have been seen on two occasions in the Okaukuejo and Halali areas. Although the rhinos were able to ward off their offenders, they can by no means be considered safe when confronted by a large pride of lions. Herbert and Austen (1972) record the killing by lions of an adult rhino which was released in the Wankie National Park. The recruitment rate of the black rhinoceros is slow, and they take a considerable time to reach maturity. The influence, therefore, of lions, par-

ticularly on rhino calves and subadults, may have a significant bearing on black rhino populations, especially when they occur in areas commonly frequented by these predators.

Despite the difficulty in locating them and the initial setbacks, rhinos are not infrequently encountered by tourists and are particularly seen in the late afternoon, when they come to drink. Before the introductions, rhinos were rarely seen during aerial censuses conducted with a light, fixed-wing aircraft. However, with recent censuses it is not uncommon to count up to thirty individuals. It is estimated that the present black rhino population in the Park is now in the region of eighty animals. The largest concentration occurs in the Koabendes-Kaross paddock with an estimated population density of one rhino to 600 ha.

### *The roan antelope*

The past distribution of roan antelope included the entire northeastern part of South West Africa and extended into the eastern Namutoni area of the Park (Shortridge, 1934). Pioneers also encountered roan antelope in the Kaokoveld, which includes the western part of the Park.

In the Etosha National Park anthrax is enzootic in the vicinity of the Etosha Salina. In view of the marked susceptibility of roan antelope to this disease (Pienaar, 1961), it was imperative that roan antelope should be introduced to the western portion of the Park which has hitherto been free of the disease. In addition, the extensive, open, grass-covered drainage lines, fringed with tree savanna, were considered an ideal habitat for the roan antelope.

Seventy-four antelope were transported by air to the Etosha National Park in October 1970 while under deep narcosis (Hofmeyr, 1973). Of these, 4 died within two days of delivery. The remaining 70 animals were quarantined in an enclosure of plastic sheeting for thirty days before they were released in the Koabendes part of the paddock. Within three months after translocation, 27 calves were born. The roan antelope preferred the drainage systems, which soon became over-grazed, forcing the animals to utilize the rocky slopes. Upon completion of the fence around Kaross, the roan antelope had access to the grass-covered valleys and adjoining tree savannas in this paddock. These habitats have been occupied by groups of 4 to 12 roan, each comprising a bull with cows and calves. In addition, two large breeding herds have formed, each consisting of up to 30 animals. Solitary bulls are encountered throughout the area.

During a helicopter census conducted in September 1972, a total of 107 roan antelope was recorded. Since their introduction, calves have been born at intervals throughout the year. In one instance a calf was killed by a leopard (*Panthera pardus*), and the latter was immobilized and removed elsewhere in the Park. The present roan population is estimated to be 120 in number.

*The black-faced impala*

Apart from a small group of 20 to 30 black-faced impala resident at Otjovasandu, these antelope were absent from the rest of the Park. However, within fairly recent times they frequented in limited numbers the southern edge of the Etosha Salina, and their distribution extended from Namutoni to Okaukuejo.

During 1970, 28 black-faced impala were released at Namutoni, and 53 were released in Koabendes. This was followed by the introduction of 127 into Kaross (Figure 1) in October 1971, of which 114 survived the hazardous journey from the Kaokoveld (Hofmeyr *et al.*, 1973). The majority of ewes were pregnant and lambed during December and January.

The Namutoni impala population has been fairly static despite normal lambing. This phenomenon is ascribed to the influence of predators, notably leopards. In contrast, the impala released in the Koabendes-Kaross paddock have rapidly increased in numbers and now total approximately 250 animals. Herds of 20 to 50 animals have occupied watering points throughout the area and remain in close proximity to these throughout the dry season.

## CONCLUSIONS

The adaptation of black rhino and black-faced impala in the Etosha National Park (excluding the Koabendes-Kaross paddock) has been successful in respect of habitat selection. The absence of large predators from the paddock and the introduction of black rhino and especially roan antelope and black-faced impala into this area has been highly successful. All three species have maintained a good condition, are reproducing successfully and are showing population increases. A certain number of these animals will be herded into the adjoining Park area, whereupon their movements, habitat selection and predator influences will be studied. In view of their successful adaptation, this paddock will also serve as a reservoir for possible translocations elsewhere.

Although the paddock was set aside primarily for the conservation of rare species, considerable population increases in the common species occurred. These increases have posed a serious threat to the habitat, which necessitated the large scale removal of these animals into the adjoining Park and elsewhere.

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