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# The Introduction of Elephant into Medium-sized Conservation Areas

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## INTRODUCTION

There is no clear definition as to what constitutes a medium-sized reserve, so for the purposes of this paper it will be regarded as a reserve greater than 5,000 hectares but smaller than 100,000 hectares. There are currently a number of reserves in South Africa, the TBVC and National States, which fall into this category. As most of these reserves comprise habitats suitable for elephant, it can be appreciated that there is considerable potential for the re-distribution of the species in the region.

## JUSTIFICATION FOR THE INTRODUCTION OF ELEPHANT

The re-introduction of elephant should only be considered if one of the objectives of the reserve is to re-establish the wildlife community which formerly occurred in the area, and that sufficient grounds exist to accept that the species did formerly occur. Once this has been established, there are secondary reasons which should be considered, namely the ecological role which elephants will play in the system and the value of the species for visitors.

Recent evidence has indicated (Whateley & Wills, in prep.) that the prolonged absence of elephant from the Hluhluwe/Umfolozi Complex has been a major reason for vegetation succession towards thicket and close woodland. Further investigation may show that this phenomenon is widespread.

It is considered very acceptable to re-establish elephants primarily for their visitor appeal. Revenues generated from tourism are becoming increasingly important in assuring the availability of conservation areas. If the re-introduction of elephant is likely to be a positive factor in "balancing the budget", it should be automatic.

The experiences of the large scale re-introductions into Pilanesberg National Park and the Hluhluwe/Umfolozi Complex, described below, perhaps

encapsulate all the problems that are likely to arise in a project of this nature.

## PILANESBERG NATIONAL PARK

The first introduction of elephant into Pilanesberg was not preceded by a specific plan of operation. As summarised in Table 1, four animals of between three and five years of age were introduced from Addo National Park in 1980. As the perimeter fence of the game reserve had not been completed they were released into a holding camp of approximately 700 hectares. Shortly after their release, an incident occurred during which the animals were harassed and one young male broke through the perimeter fence. Three days later, he had traveled over 50 kilometres and was involved in the tragic death of a farmer.

The remaining animals were recaptured and held in a small boma to await the completion of the perimeter fence. During this period they were fed contaminated food and one animal died. The two survivors were immediately released into the original holding camp. This happened in September 1980 when food quality and availability were at their lowest, compounded by the fact that the holding, camp was heavily stocked with other ungulates. Within days, one of the two had died of starvation and the lone survivor was recaptured and again transferred back to the boma. Following a change in senior management of the Park, the animal was released in December when food quality and availability were optimal. Thereafter, no further problems were experienced with the animal.

After the perimeter fence had been completed, a further introduction was planned with animals to come from the Kruger National Park. A large and substantial boma was constructed in the centre of the Park, and the animals which were received in June 1981 were held until November before their release. Several of these animals had been selected for overseas export when captured and were considered to be too small for release into the wild. However, with the

Table 1. The Introduction and known mortality of elephant to Pilanesberg National Park.

Year	Number	Age	Source	Recorded Deaths
1980	4	Juvenile	Addo National Park	3
1981	18	Juvenile	Kruger National Park	5
1982	2	Adult	Kruger National Park	0
1983	14	Juvenile	Kruger National Park	1
1983	2	Juvenile	Namibia	0

cancellation of their purchase order, they were included for introduction. It was not surprising that 5 of these smaller animals did not survive the following winter.

The following year, 1982, 2 circus trained animals, both 18-year-old females originally from the Kruger National park, were- successfully re-introduced (Moore & Munnion, 1989). Their re-acclimatisation to the world was a gradual process accomplished most successfully by their trainer and owner Randall Moore. On their release, these animals took over the leadership of the younger animals, released the previous year, and behaved like wild elephants.

In 1983 the introduction of a further 14 animals from Kruger National Park took place. These were larger than those of the first introduction and only one animal was lost, suspected to have been killed by a rhino. On their release, the remaining animals joined the group led by the 2 adult females described above.

During the same year a further 2 tame Namibian bull elephants of approximately 5 years of age were donated by the S.A. Police. These both settled down without any problem.

The first calf was born in 1989 to one of the animals introduced directly from Kruger. A second was born during 1990, and a third early in 1991.

The Pilanesberg elephants have remained fairly shy and keep to the wilderness zone of the Park. Recently, a group of 16 young bulls has formed which ranges more widely than the females and young (Keffen, pers. comm).

Despite the debacle of the first release, the re-introductions are considered to be highly successful overall. The mortalities in the Kruger National Park

introductions were probably because many animals were too young to survive without supplementary feeding.

## HLUHUWE/UMFOLOZI COMPLEX

The re-introduction of elephant into the Hluhluwe/Umfolozi Complex commenced in 1974 with strong motivation from the Field and Research *staff*. After satisfactorily resolving the concerns of the Parks Board's senior management, and drawing up a detailed plan for the introduction and subsequent monitoring, the first animals were re-introduced in July 1981.

They were released into a holding boma of 20 m<sup>2</sup> and after 5 days they were released into a 200 m<sup>2</sup> paddock for 2 months.

By November 1985, 30 animals had been introduced to Umfolozi with 27 surviving, and 26 to Hluhluwe with 18 surviving.

Much of the concern about animals breaking out of the complex was allayed by the experience gained through the existing introduction. Greater emphasis was instead attached to the role which elephants would play in the vegetation management of the area. This motivated the decision to increase the numbers of introduced animals to 150. The programme was implemented in subsequent years and the introductions are summarised in Table 2.

## FACTORS TO BE CONSIDERED IN ANY RE-INTRODUCTION

### *Habitat evaluation and stocking levels*

Woodland is considered to be an essential element, because it has been favoured by all the introduced populations.

Knowing that the introduced populations eventually

had to be managed, a set number of animals was introduced to Pilanesberg, based on the desired carrying capacity.

In the Hluhluwe/Umfolozi re-introduction, the possible beneficial impact of elephant in the control of thicket encroachment was highlighted as one of the major reasons to support the introduction.

#### **Attitude of neighbours**

The attitude of a reserve's neighbours towards any proposed re-introduction of elephant must be considered. Attitudes will be affected by the type of land-use being practised and the socio-economic situation of the community. For example, sugar farmers will view the introduction of elephant differently to cattle ranchers.

To avoid any adverse attitudes, introduction of elephant should be preceded by an information programme in the community informing the people about the operation, the reasons behind it and the measures which will be taken to safeguard the interests of the community.

#### **Fencing**

Consideration must be given to the standard of the perimeter fence. As a general rule, the smaller the reserve the more substantial the fence required. This is because in small reserves there is likely to be greater degree of contact with the fence.

In some reserves, such as Pilanesberg, the fences which have been erected are strong enough to be physical deterrents. However, it has been shown that electrification of fences to form impenetrable barriers

is not essential, provided that animals are "trained" to respect a fence.

#### **Bomas**

In all the re-introductions into medium-sized reserves, the animals have been held for varying lengths of time prior to release.

It is advisable to construct the training boma to appear as similar as possible to the boundary fence, although it may be substantially stronger.

In Pilanesberg and in the Hluhluwe/Umfolozi the bomas were not electrified but were stronger than the boundary fence, to which they bore little resemblance. In Mthethomusha, in KaNgwane, the boma looked more like the perimeter fence but was electrified. Also, the boma fence in Mthethomusha was visually strengthened with game capture plastic which was only removed four days after the released animals settled down and had already been in contact with the electric wires.

The animals should stay for at least a month in the bomas before their release. The release itself should be accomplished by simply opening the bomas and allowing the animals to find their own way out. Disturbance during the release should be kept to a minimum.

#### **Timing the release**

The phenology of the vegetation must be accounted for when the animals are released. Whenever possible, the release should take place when there is widespread water and when food quality is high, i.e. shortly after the commencement of the rainy season.

Table 2. The introduction and known mortality of elephant into the Hluhluwe/Umfolozi Complex.

Year	Hluhluwe	Umfolozi	Recorded Deaths
1981	8	-	4
1983	8	-	4
1984	10	-	1
1985	-	30	7
1986	6	-	1
1987	18	-	0
1988	-	34	5
1989	35	-	0
1990	-	23	0

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### **Genetic Considerations**

In planning their objectives, most managers of conservation areas take cognisance of the World Conservation Strategy and its goal to "preserve genetic diversity". Much attention is also given to preserving the genetic integrity of species.

In Pilanesberg, the first animals to be introduced were from Addo. When the surviving Addo bull was due to be joined by a larger introduction from the Kruger National Park, the idea of removing him to avoid mixing Addo and Kruger genes was seriously considered. However, it was concluded that, historically, there must have been contact between these populations. Therefore by allowing them to mix again, the gene flow - which existed before the populations were fragmented - would be restored. The later introduction of two males from Namibia was viewed in the same way.

All other introductions into medium-sized reserves have been confined to animals from the Kruger National Park. These populations will not improve the genetic diversity of the Kruger population.

### **Animal size**

The larger the animals are, the greater their chances of survival. Currently, animals of up to 2.3 metres high at the shoulder are being successfully caught and translocated from both the Kruger National Park and the Gonarezhou in Zimbabwe.

Two re-introduction programmes undertaken since 1991 have illustrated the lower mortality when larger animals are moved. In Songimvelo Game Reserve there were no losses in the re-introduction of 20 animals, and in Madikwe National Park 185 animals were re-introduced with only 6 lost (4 which were due to accidents). The 2 trained adult animals introduced into Pilanesberg have added a new dimension to re-establishing elephant populations.

### **Group size and leadership**

Because of the close-knit matriarchal social structure of elephants, there is considerable stress on young animals which are relocated. Large animals in a group are followed by the younger ones, as a substitute for parental leadership. The leadership by the two adult cows in Pilanesberg over a large group of young animals illustrates this need well.

The view expressed by Wills (pers. Comm.) that larger groups experience lower mortality rates than smaller groups should be noted, especially where animals are to be introduced into areas which harbour lion and spotted hyena.

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