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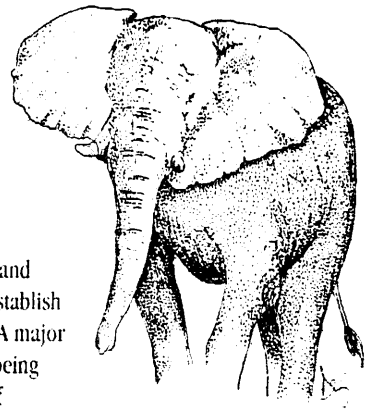
A History of Reintroduction and the Current Status of Larger Mammals at Phinda



Dee Adams

Phinda Resource Reserve is just over 14 000 hectares in extent and is situated in the Maputaland region of northern KwaZulu-Natal. In 1990 and 1991 thirteen farms were bought by CCA to establish the reserve. These farms were at the time used for hunting, cotton, pineapple, sisal or cattle. A major clean-up operation was initiated to remove old farming implements (15 tons of scrap metal being gathered and removed) and infrastructure including 22km of power lines and over 200km of fencing. A new 105km perimeter fence was erected and the restocking of large mammals began.

The operation was dubbed 'Phinda Izilwane', which means 'return of the wild animals'. Only those species that were known to occur in the area historically were introduced, with the possible exception of Giraffe whose original presence in this part of the country is disputed by some. At the time, the restocking of the newly created Phinda was the largest effort of its kind to have taken place on private property in South Africa.

Phinda was born out of Dave Varty's desire to recreate the 'Londolozi Model' in various parts of Africa. Dave and Alan Bernstein raised the finance, while Kevin Leo-Smith identified the potential of this particular area. Phinda remains the only property actually owned by CCA (all other lodges are situated on land which is leased) and for this reason can be regarded as the company's flagship.

Due to the nature of the ecotourism business, the reserve had to be stocked quickly in order to provide guests with an exciting wildlife experience. This could not be achieved instantly, however, and game-viewing drives in the early days were tough, with guests sometimes returning to the lodge having seen only antelope or smaller nocturnal animals. Phinda rangers had to be creative with guests, by providing fascinating information about the reintroduction programme, the region's geology and fossil history, and by focusing drives and walks on the multitude of trees, birds and smaller lifeforms. Slowly but surely, the newly introduced animals settled down, increased in number, and improved sightings were the result. Now, eight years later, the ecosystems are functioning, and guests enjoy excellent wildlife encounters.

In 1993, the Munyawana Game Reserve was formed to include Phinda and the adjoining Bumbeni, but traversing rights to Bumbeni were acquired only in 1996. Between 1992 and 1997 game drives were allowed on Lulubush, but the owners could not agree on traversing fees after this five year contract, and the property was then fenced out of the greater Munyawana Reserve.

In this report, the past and present numbers of all larger mammal species are presented (Table 1), along with details on Phinda's carrying capacity (Table 2) and data on recorded predation, culling, hunting and poaching (Tables 3 and 4). The specific backgrounds, reintroduction strategies and current status of certain important mammal species at Phinda is also discussed.

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TABLE 1: Past and Present Numbers of Larger Mammals of Phinda

	Present 1991	Introduced	July 1994	December 1998
Leopard	yes	0	13	20
Lion	no	13	13	14
Cheetah	no	12	15	16
Serval	no	0	?	?
Caracal	yes	2	?	?
Spotted Hyena	yes	0	10	?
Brown Hyena	yes	1	0	0
Black-backed Jackal	no	2	?	?
Side-striped Jackal	no	8	?	?
African Elephant	no	58	50	56
Hippopotamus	no	7	0	5
White Rhinoceros	no	38	40	57
Common Zebra	yes	160	500	350
Bushpig	yes	0	100	200
Warthog	yes	0	1000	1000
Giraffe	yes	40	70	90
Red Duiker	yes	0	125	125
Grey Duiker	yes	0	400	400
Steenbok	yes	0	75	50
Suni	yes	0	150	100
Mountain Reedbuck	yes	0	8	1
Common Reedbuck	yes	0	75	50
Waterbuck	yes	?	10	25
Bushbuck	yes	0	?	0
Nyala	yes	0	2500	2000
Greater Kudu	yes	0	300	200
Eland	no	20	?	2
Impala	yes	30	2500	2000
Blue Wildebeest	yes	200	750	450
Buffalo	no	21	0	21

Red Hartebeest and Blesbok were present in the reserve in 1991 as they had been introduced by one of the former landowners. These species are not indigenous to the region and were removed during 1991 and 1992.

Game count techniques at Phinda

Accurate game counts are difficult at Phinda due to the dense vegetation and the rugged nature of the terrain. Andrew Lewis, Phinda's habitat manager, stresses that figures obtained are estimates and are used as guidelines only. Every six months, each road on the property is driven and all game is counted. By repeating this process, it is possible to determine population trends. Experimentation with transect counts - as employed by ecologist Dr Pete Goodman - is also taking place.

TABLE 2: Carrying Capacity of Phinda (Munyawana)

Reserve area in ha 14 000
Number of ha/LAU 8 (figure provided by Natal Parks Bo.
thus, the carrying capacity for Phinda 1 750ha/LAU*
(a Large Animal Unit (LAU) is equivalent to one Buffalo in te... of average mass, food intake and energy conversion.)*

Breakdown of carrying capacity (stocking rate) in Large Animal Units (LAU)

Bulk grazers	40% = 700 LAU
Concentrate feeders	40% = 700 LAU
Browsers	20% = 350 LAU

ACTUAL (present situation)

Bulk grazers	**Population**	**Individuals/LAU**	**Maximum no. of LAU**
White Rhino	47	2.5	117.5
African Elephant (?%)	57	0.36	?
Hippo	?	2	?
Common Zebra	350	0.56	196
Waterbuck	25	0.45	11.25
Buffalo	0	1	-
Total			**324.75**

Concentrate feeders	**Population**	**Individuals/LAU**	**Maximum no. of LAU**
Warthog	1000	0.18	180
Common Reedbuck	50	0.12	6
Nyala (60%)	2000	0.25	300
Impala (80%)	2000	0.16	256
Blue Wildebeest	450	0.5	225
Total			**967**

Browsers	**Population**	**Individuals/LAU**	**Maximum no. of LAU**
African Elephant (?%)	57	0.36	?
Giraffe	100	1.4	140
Nyala (40%)	2000	0.25	320
Greater Kudu	200	0.4	80
Impala (20%)	2000	0.16	64
Total			**604**

The accuracy of these figures is dependent on the hectare/LAU figure of 8 (calculated by the Natal Parks correct. Assuming that the figure is correct, then Phinda is slightly low on bulk grazers and too high on release of Buffalo, this situation will improve. One problem, is that no figure has been calculated for Ele percentage of browse versus grazing in their diet is not known. This table was compiled prior to the rein Hippo and Buffalo.

Species whose numbers are increasing are Lion, Cheetah, Leopard, African Elephant, White Rhino and Nyala. Species whose numbers are decreasing are Common Zebra, Common Reedbuck and Blue W to predator pressure: Table 3). Species whose numbers appear static, are Spotted Hyena, Waterbuck, G Impala. Species whose numbers are unconfirmed, are Bushpig, Red Duiker, Grey Duiker, Suni and Stee

TABLE 3: Predation of certain herbivores from January 1996 to May 1998

	Lion	Cheetah	Leopard	Total
Common Zebra	57	5	2	64
Warthog	90	3	5	98
Nyala	40	44	14	98
Greater Kudu	13	2	0	15
Impala	15	90	14	119
Blue Wildebeest	86	-	0	93

(these are minimum figures as some predation goes undetected)

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	yes	2	?	?
	yes	0	10	?
	yes	1	0	0
sal	no	2	?	?
l	no	8	?	?
	no	58	50	56
	no	7	0	5
	no	38	40	57
	yes	160	500	350
	yes	0	100	200
	yes	0	1000	1000
	yes	40	70	90
	yes	0	125	125
	yes	0	400	400
	yes	0	75	50
	yes	0	150	100
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Species whose numbers are increasing are Lion, Cheetah, Leopard, African Elephant, White Rhino, Warthog, Giraffe and Nyala. Species whose numbers are decreasing are Common Zebra, Common Reedbuck and Blue Wildebeest (attributed to predator pressure: Table 3). Species whose numbers appear static, are Spotted Hyena, Waterbuck, Greater Kudu and Impala. Species whose numbers are unconfirmed, are Bushpig, Red Duiker, Grey Duiker, Suni and Steenbok.

TABLE 3: Predation of certain herbivores from January 1996 to May 1998

	Lion	**Cheetah**	**Leopard**	**Total**
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Warthog	90	3	5	98
Nyala	40	44	14	98
Greater Kudu	13	2	0	15
Impala	15	90	14	119
Blue Wildebeest	86	7	0	93

(these are minimum figures as some predation goes undetected)

Possible future reintroductions

Black Rhinoceros may be considered for reintroduction to Phinda in the future as they do extremely well in surrounding reserves and offer exciting game viewing opportunities. Additional Common Zebra, Blue Wildebeest, Waterbuck and Eland may also be considered. It is likely that additional male Lions will need to be introduced to maintain genetic diversity in the population. Although it would be desirable to reintroduce more Spotted Hyena, it is unlikely that this would be successful as these animals are not easily contained and suffer persecution on adjoining properties.

Hunting, culling and poaching

A certain amount of small-scale hunting does take place in the Munyawana, but ecotourism and intense hunting are not compatible. If practised in a sustainable way, hunting is an important aspect of managing a wildlife reserve. When Phinda first took control of the properties, poaching was rife and hundreds of snares were removed by game guards. Over the years, there has been a decrease in poaching incidents and this is at least partly due to the positive relationship that now exists with the local communities. Trends indicate that poaching increases when conditions are harsh, normally in winter. Phinda has been fortunate in that commercial poaching for rhino and elephant has not taken place and this must surely have to do with the well-trained, highly-organized game guard team. The poaching figures listed below are minimum figures as not all carcasses or trails are located, and this is especially true for smaller animals such a duiker. Four Lion were killed in snares which were not set specifically for them in 1995, and a subadult male suffered the same fate in September 1998 (these incidents fall outside the time period of the table below).

TABLE 4: Species hunted, culled and poached between January 1996 and May 1998

	Hunted	Culled	Poached	Total
White Rhinoceros	1	0	0	1
Common Zebra	0	0	1	1
Warthog	53	51	0	104
Red Duiker	15	0	0	15
Suni	1	0	0	1
Waterbuck	0	0	1	1
Common Reedbuck	3	0	0	3
Impala	43	59	0	102
Nyala	49	5	1	55
Blue Wildebeest	8	3	2	13

Bush-clearing

The process of bush-clearing began in 1992 with the objective of eliminating tree thickets from formerly overgrazed land, in order that palatable grass species could regenerate. By 1994, 1 500ha had been cleared and positive effects were being seen. Clearing takes place in both the north and south and has been very successful, with grazing species responding quickly. Once the woody scrub has been removed, clearings are maintained either by slashing, mowing or burning. A sustainable charcoal operation is involved in some of the clearing and the balance is carried out with front-end loaders.

African Elephant

The bulk of Phinda's elephants originated from the Kruger National Park, with six indivic from Zimbabwe. White Rhinoceros and Nyala were exchanged for some of the elephants. A were initially put into a boma so that they could become accustomed to electric fencing - in terms of their containment within Phinda. All releases were completed in 1994, but a : out into the surrounding community that year, and one had to be destroyed before they v rounded up and returned to the reserve. The majority of individuals were immature whe but births were recorded for the first time in 1994. A total of five calves have been produ and the population is growing steadily.

Date	Introduced	Mortalities	Births	Total
1992	18 (Kruger)	1	0	17
1993	20 (Kruger)	0	0	37
1993	6 (Zimbabwe)	2	0	41
1994	14 (Kruger)	2	2	55
1995	0	0	1	56
1996	0	0	0	56
1997	0	1	2	57
1998	0	1	0	56

White Rhinoceros

White Rhino were among the first species to be reintroduced and they have bred well o which has enabled Phinda to use them in exchange deals for other species. In 1991 the White Rhino on the property, when an additional 26 were translocated to Phinda from t Malachite Reserve. Amazingly, 21 of these were moved and released in a single day! The no further introductions and numbers have fluctuated due to births, deaths (six died d severe drought of 1992) and translocations to Madikwe and elsewhere. In July 1994 th White Rhino at Phinda and this figure had risen to 47 in August 1998.

Cheetah

Cheetah were reintroduced in 1991, prior to the lions, in order to give them a chance t before their more powerful relatives entered the reserve. Twelve were released in two g come from two different parts of Namibia. They were put into bomas initially and then tracking devices before being released. Cheetah have bred well with numbers increasi where many have had to be sold as a population of about 16 is considered appropriate

Lion

Because Phinda is surrounded by communities and cattle farms, permission had to be these neighbours for the reintroduction of lions. Negotiations began in 1991 and by 19 cats were roaming Phinda. The agreement was that Phinda must know where its lions times, and collars bearing transmitters were fitted to key individuals. The collars were five years.

In 1992, seven lions were reintroduced from Tshukudu near Hoedspruit, and six f Sand Game Reserve bordering the Kruger National Park followed in 1993. Like the ele

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White Rhinoceros

White Rhino were among the first species to be reintroduced and they have bred well over the years, which has enabled Phinda to use them in exchange deals for other species. In 1991 there were 12 White Rhino on the property, when an additional 26 were translocated to Phinda from the nearby Malachite Reserve. Amazingly, 21 of these were moved and released in a single day! There have been no further introductions and numbers have fluctuated due to births, deaths (six died during the severe drought of 1992) and translocations to Madikwe and elsewhere. In July 1994 there were 40 White Rhino at Phinda and this figure had risen to 47 in August 1998.

Cheetah

Cheetah were reintroduced in 1991, prior to the lions, in order to give them a chance to settle down before their more powerful relatives entered the reserve. Twelve were released in two groups, having come from two different parts of Namibia. They were put into bomas initially and then fitted with tracking devices before being released. Cheetah have bred well with numbers increasing to the point where many have had to be sold as a population of about 16 is considered appropriate.

Lion

Because Phinda is surrounded by communities and cattle farms, permission had to be sought from these neighbours for the reintroduction of lions. Negotiations began in 1991 and by 1992 the great cats were roaming Phinda. The agreement was that Phinda must know where its lions were at all times, and collars bearing transmitters were fitted to key individuals. The collars were to stay on for five years.

In 1992, seven lions were reintroduced from Tshukudu near Hoedspruit, and six from the Sabi Sand Game Reserve bordering the Kruger National Park followed in 1993. Like the elephants, they

were initially put into bomas for acclimatisation and to get them used to electric fencing.

Over the years, the lions have flourished and their numbers have had to be regularly reduced to limit their impact on herbivore populations. The following data is provided courtesy of Dr Luke Hunter, who has monitored the reintroduction programme.

Date	Introductions	Births	Infanticides	Mortalities	Translocations	Total
1992	7 (Tshukudu)	0	0	0	0	7
1993	6 (Sabi-Sand)	7	0	3 (destroyed)	0	17
1994	0	9	5	5 (snared)	0	16
1995	0	11	0	0	0	27
1996	0	0	0	0	8 (Tswalu)	19
1997	0	16	0	0	5 (Kapama)	30
1998	0	3	0	1 (snared)	12+3	17*

** as at October 1998 (translocations included 5 to Sandringham and 3 to Ngwalagwada)*

Buffalo

Negotiations to have Buffalo released onto Phinda have taken six or seven years of determined effort. In 1997 permission was finally granted and 98 were translocated from Hluhluwe/Umfolozi to specially built holding pens at Phinda. These buffalo spent over a year in quarantine in order to isolate any individuals which test positive for Bovine tuberculosis - a highly contagious disease for cattle and other wild animals. Twenty one of these buffalo were eventually released in December 1998.

Nyala

Being such an abundant and productive antelope, Nyala have been swapped for other species over the years, and many more have been sold or hunted to bring in important revenue. Some of the exchange deals have involved African Elephant, Giraffe and Cheetah. A total of 1111 Nyala have been sold since 1991; the breakdown being as follows: 205 in 1991, 144 in 1992, 168 in 1993, 183 in 1994, 192 in 1995, 87 in 1996 and 132 in 1997.

Hippopotamus

In 1992, two Hippo were introduced from Game Valley Safari Park, but just a week after their release one of them died. The remaining Hippo moved from Izwe Dam into the Mzinene River where it remained for 18 months. Five more Hippo were reintroduced in 1998 from the Crocodile River in Mpumalanga. It was hoped that they would remain in a group but they scattered to different water bodies in the reserve. All five seem to be doing well but it may take time for them to settle down.

DISCUSSION

There is no doubt that the reintroduction of large mammals to Phinda has been a great success. Although this report is brief, it was not easy to compile because accurate written records were not kept prior to Andrew Lewis being appointed as habitat manager. Looking ahead, it is essential that monitoring and data collection is maintained for the appropriate management of the reserve.

Acknowledgments

I am grateful to Andrew Lewis and Les Carlisle, whose brains I picked in putting this report together, and to Luke Hunter for data on Lion, and to Carl Walker for information on early reintroductions.

Notes on Cheetah at Phinda

Tina Martin & Bryan Olver

Background

Cheetah were introduced to Phinda in 1991, when twelve individuals were brought in fr They have subsequently flourished, with numerous litters of cubs being born over the y ment has set a figure of sixteen Cheetah as being ideal for the 14 000ha reserve, so nur tained at around this level by relocating surplus animals to other reserves.

Introduction

The aim of this project was to map the territories and home ranges of all known Cheet prey records to determine preferences. We also set out to create identikits of the indivi describe and map social units. Information was accumulated from our own notes take game drives, and from observation forms completed by fellow rangers. Time was also Cheetah outside of game drives in order to observe behaviour and habituate them to v

At the time of writing there are 16 known Cheetah at Phinda, and we enjoy superb sightings of them on game drives. All ages quoted in this report are as of September 1 great deal of suitable habitat for Cheetah and although they have been observed huntin including sand forest fringe, they favour more open areas. The ongoing bush-clearing thought to be advantageous to Cheetah.

Mortality and conflict with competitors

Mortality of youngsters is very low compared to the average, with litters of four comm adulthood. The only death reported in the past year was a single male that was killed b three dominant males, almost certainly in a territorial dispute. There is a fair amount tween Cheetah and Lion, with the smaller cats successfully avoiding conflict, except in when a mother received an injury but recovered fully. Interestingly, Cheetah frequent t the reserve as Lion, and show no indication of avoiding Lion territories. There has bee death by Spotted Hyena, although that particular Cheetah had earlier been injured by l recent years, Cheetah have probably benefited from the low hyena population (there a fewer than ten) at Phinda. Leopard have killed one adult female and her two eight mo (1996).

Known Individuals and groups

THREE MALE COALITION

Born at Phinda, these three brothers are aged about four years and are the dominant serve. They are from an original litter of four (the female went its own way), but their by a Leopard shortly after she gave birth to her next litter. With no real competition (o are in pairs or loners) they are very successful and efficient hunters. They scent-mark move around, usually all three of them on the same spot.