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THE RECOLONISATION HISTORY OF THE
SQUARE-LIPPED (WHITE) RHINOCEROS *CERA-
TOTHERIUM SIMUM SIMUM* (BURCHELL) IN THE
KRUGER NATIONAL PARK (OCTOBER 1961 —
NOVEMBER 1969)

by

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It is now generally accepted that the square-lipped or white rhinoceros became extinct in the Transvaal during or just after the year 1896. (Bigalke, 1963).

There is little doubt that the last survivors in the Lowveld and, indeed, in the whole of the Transvaal, frequented an area which is today included in the southern district of the Kruger National Park. It is here that Vaughan Kirby (1896) recorded the last living specimens of the species in the dense Nwativhiri bush, along the southern bank of the Sabi river, between Skukuza and Lower Sabi. Kirby remarks on the fact that "for many years past the well-known 'Matamiri' bush, has been a favourite resort of *Rhinoceros simus*, but they have become almost extinct now even there. This year (1895) I came upon two in that district, a cow and a big calf, but they are decidedly rare."

In a previous publication (Pienaar, 1963), the author did not include Kirby's record, as the presence of these large grazing animals in the dense *Acacia* thickets of the Nwativhiri bush, with its very sparse cover of short grasses appeared very doubtful, and it was considered likely that Kirby may have actually misidentified a pair of black rhinos, which also found sanctuary in this region, and of which a few persisted here until October 1936.

Both Glynn (1926) and Stevenson-Hamilton (1950) were quoted as stating that the square-lipped rhinoceros ceased to exist in the Transvaal Lowveld after the seventies of the last century. Subsequent events, and, in particular, the selection of habitats by newly translocated square-lipped rhinos in the Kruger Park would, however, appear to confirm Kirby's record. Bigalke (1963), therefore, was correct in stating that there is no valid reason to dispute Kirby's assumption that 1896 was the year when the square-lipped rhinoceros disappeared from the Transvaal.

The indiscriminate slaughter and ceaseless persecution by hunters

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during the latter half of the 19th century must be held primarily responsible for the disappearance of these great beasts from this portion of their erstwhile range, but it was also man who was responsible for the reintroduction of the square-lipped rhinoceros into the Transvaal after a lapse of 65 years.

When the late Mr. P. Grobler, then minister of Lands, opened the first meeting of the National Parks Board on 16 September 1926, he specifically stressed the necessity for the resettlement of these rare animals in the newly proclaimed Kruger National Park (Bigalke, 1954). The American naturalist Herbert Lang also visited the Zululand square-lipped rhino sanctuaries during this period, and subsequently submitted a report in which he strongly advocated the capture and relocation of some of these rare animals to other parts of their former range.

Several capture techniques were suggested by him, but all proved to be impractical, and it was not until the advent of modern drug-immobilizing techniques, largely through the efforts of Dr. A. M. Harthoorn, that this plan was finally put into operation (Harthoorn and Player, 1964; Harthoorn, 1962).

The historic day dawned on 14 October 1961, when four square-lipped rhinos (2 bulls and 2 cows) were released in a special enclosure at Faai, near Pretoriuskop, in the south-western section of the Kruger Park. These animals were captured in the Umfolozi Game Reserve (during the week of 3-7 October) by means of a neuroleptic-narcotic drug mixture (Morphine, Hyoscine and Chlorpromazine), and transported by road over a distance of more than 350 miles (during 12 and 13 October). For the first time in 65 years these great beasts again left their characteristic cloverleaf tracks in a portion of the Eastern Transvaal Lowveld. The original four rhino pioneers settled down very well in their 300 morgen enclosure, and the translocation exercise proved to be such a success that the stage was now set for the extensive relocation program, which the conservation authorities in Natal had long dreamed of. Two more square-lipped rhino cows were successfully transported to the Kruger Park from Umfolozi during June and July of 1962 and released in the Faai camp. These were followed by two bulls (during September 1962 and May 1963). The female arrivals were accepted by the original occupants of the camp, but the two bulls were immediately set upon, and the first was so severely injured in the ensuing fighting that it had to be destroyed. The other bull would probably have suffered a similar fate had it not been released from the camp during November 1963.

During May 1963 the translocation of square-lipped rhinoceroses from the Natal rhino sanctuaries to the Kruger Park was also launched on a more organised basis, and on every alternate week a pair of rhinos were brought in from Natal by road, using transport provided by the National Parks Board. In September of that year the capturing of rhinos became a safe and routine procedure with the introduction of the potent

synthetic morphine analogue, Etorphine hydrochloride (M-99). Since that time all rhinos captured in Natal were immobilized with this drug. By the first week in December 1963 nine males and six female animals were successfully translocated and these were all released in the Pretoriuskop section, along the Sabi river, at either Skurukwane or Doispane. Two adult bulls were then released in the Crocodile bridge section near Mhlanganzwane dam and then another two at Doispane, but since the first week of January 1964, a total of 13 bulls and 3 cows were transported to the northern mopani-veld regions, where they were released along the Tsende river at Shipandane, or along the road to Mahlangene.

It soon became apparent, however, that the new immigrants did not take to the mopani areas of the north and wandered great distances in search of more suitable habitat. After mid-April 1964 all subsequent recruits to the Park population were released in the southern district, either at Doispane (the bulk of the new immigrants) or in the Mhlanganzwane-Panamana area of Crocodile bridge section. When the first translocation operation was terminated on 28 September 1964 a total of 98 square-lipped rhinos had been successfully captured and moved to the Kruger Park (*vide* Table).

Of this number a total of two males and two females died from either the effects of the drugs or from injuries received in transit, but the mortality rate was very low when the arduous journey and massive weight of these beasts are considered. Most of the other rhinos survived the trip from Natal with no more serious mishap than a few superficial bruises, but some of the more aggressive individuals fought their crates and shed their frontal horns in the process thereof. A new type of crate with a slanting anterior end (see Plate 1) was designed to prevent the translocated rhinos breaking their horns, and these crates have been used with singular success ever since.

During December 1968 the National Parks Board was approached by the Natal authorities to accept a further group of their surplus square-lipped rhinos, and in the period between 18 December 1968 and 24 September 1969 a total of 28 bulls and 13 cows were translocated to the Kruger Park. During August 1969 the Kruger Park was presented with an adult cow, which the Mlilwane Game reserve in Swaziland found impossible to keep. Towards the end of October of this year, also, a report was received of a wandering white rhino bull on a farm near Klaseri. This rhino had possibly strayed from one of the private game reserves to the west of the Kruger Park, but since nobody claimed the beast it was duly captured and transported back to the Kruger Park. All the rhinos brought into Kruger during the second translocation operation were released in the Mlambane—Malelane area of the southern district, except two, which were released near Pretoriuskop, and the Klaseri bull, which was released along the Naphe road near Shipampanane. Of the total of 43 rhinos relocated during this period only two, a bull and a cow,

died in transit (*vide* Table). This gives a final mortality figure of only 6 animals out of a total of 141 of these valuable animals—which is quite an outstanding achievement by any standards!

As could be expected, the first few rhinos released directly in the strange surroundings at Doispane and Skurukwane, during the latter half of 1963, took a considerable time to settle down in their new home. Some of the animals wandered great distances during this period, but it was significant that many returned to the area of release before finally taking up more permanent residence in areas which they selected as suitable new habitats. A number of newly arrived animals would linger at the point of release for some time and then wandered south towards Pretoriuskop—a distance of some 15 miles. They would then move around here for a day or so and return to the Sabi on the next day. Their route during these treks to and from Pretoriuskop would take them along the Mtsawu river, which has perennial water-holes along its lower reaches, and it was not unexpected when the first signs of permanent settlement took place in this region (area marked A in Fig. 4). As more and more rhinos were brought into the Park, others wandered further afield and took up permanent residence in other areas. The next of these habitats to be colonised was the upper reaches of the Nwaswitshaka river, from Mathlari eastwards (area marked B in Fig. 4). During the most recent aerial survey 13 were counted in the immediate vicinity of Mathlari windmill. A subsequent development was the settlement along the Mbyamiti from Hlambamadubu westwards to its confluence with the Shipampanane spruit (area C in Fig. 4). From here, as well as from the other areas selected for settlement, rhinos gradually moved south until they discovered the region along the headwaters of the Mlambane river (area E in Fig. 4). To date, this is the most recent area of colonisation, and also the most important, as it approximates most closely, in both topographical and vegetational aspect, their original habitat in the Umfolozi game reserve. The gently rolling hills and relatively open *Terminalia* woodland savanna of this region, with its dominant cover of *Themeda triandra* and *Hyparrhenia* spp., proved to be most generally acceptable to the new immigrants, and in due course considerable numbers of rhinos took up permanent residence here. It was here, in the immediate environs of Mlambane dam, that 23 were counted during a recent aerial survey (some in family groups of 3–5 animals.) Since that time, most of the rhinos brought in during the second translocation operation, were also released here and the majority of these also remained in the area. Up to seven have been seen together here on occasion. This then (i.e. area E) has become the most important rhino habitat of the Park, and differs significantly from all the other rhino habitats in that it is the only area (apart from area D), which is not covered by dense woodland or thicket. Areas B, C and also F are situated in dense *Acacia welwitschii*—*Albizia evansii*—*Euclea* thickets with only patches of more open grassland and woodland on the brackish glades along the rivers and

their tributaries. It does seem possible that the selection of these habitats by the animals is a protective adaptation to their foreign surroundings, and that these animals will eventually move out to more characteristically open habitats elsewhere. As yet, they have shown no inclination to leave these areas, except for occasional wanderings, and this may be considered as adequate confirmation for the reported presence of square-lipped rhinos in the dense Nwatimhiri bush in 1895 (*vide* Kirby, 1896).

The attempt to settle square-lipped rhinos in the northern mopani woodlands and savannas was an almost complete failure. Of the 15 animals originally released at Shipandane along the Tsende (area G in Fig. 4), only one bull and one cow remained. All the others strayed away and wandered around for months in an attempt to find suitable habitats. In the process some of these animals covered immense distances. Some even moved as far as Pafuri, in the extreme north of the Park, and these also entered Rhodesia from here before returning. A number also strayed across the Lebombos and were lost in Mozambique. One crossed the Letaba river and after considerable wandering in the area between Letaba and Olifants rivers eventually crossed the latter barrier and moved south. At present there are not more than nine square-lipped rhinos in the northern district, of which three are calves which have been born (two to the cow along the Tsende) since 1965.

It was noticed for the first time in early 1964 that some rhinos were crossing the Sabi river and moving into the central district of the Park. The point of crossing has not yet been established, but it would appear to be between Skukuza and the old Msutlu picket. This process has been going on intermittently ever since, and a number of rhinos have now moved into the central area of the Park where they have mainly settled in two areas—(i) a thriving breeding nucleus in the area north-west of Tshokwane, along the lower reaches of the Hutomi-spruit and its confluence with the Nwaswitsontso river (area F in Fig. 4) and (ii) a number of solitary bulls (7–8) in the area around Nwanetzi camp, and westwards along the Shishangane and Nwanetzi rivers.

Apart from the rhinos which strayed across the eastern boundary into Mozambique and of which number a few were killed by poachers, several also found their way through the western boundary fence and moved off into settled areas. Fortunately, all of these could be tracked down, darted with immobilizing darts and returned to the Park.

A young bull was caught in a snare along the Sabi river and its leg became gangrenous. It was captured with the aid of drugs but died under treatment. An adult bull fell down a steep embankment in search of water in the Numbi area. It found the steep bank of the ravine impossible to negotiate and died here before it was found. A cow drowned when she attempted to cross the Sabi river at a deep point, and a very large bull was so badly mauled by lions at Mlakeni that it had to be destroyed. One of the wandering rhino bulls in the northern district happened to dispute a waterhole at Nkulumbene-north with a bull elephant and was

fatally gored by its adversary after a tremendous battle. A few skeletons of rhinos, which had died from unknown causes, have also been found in the Lebombos at Sabipoort and along the Crocodile river.

Fortunately, all these losses were more than augmented by the birth of a number of calves, both in the "Faai" rhino enclosure and amongst the free-ranging populations. The births in the "Faai" enclosure were particularly significant in that valuable reproduction and growth data could be obtained from them. In this respect the following is worth recording: the cow "Kwangulatelo" was observed to mate on 23 November 1965 and gave birth to a bull calf on 14 March 1967—giving a gestation period of not quite 16 months. This calf, which was christened "Shaben" was first observed to commence grazing on 16 July, 1967 i.e. 4 months after birth. Another cow, "Mfolozana" gave birth to a bull calf "Manung" on 3 November 1965 and to another bull calf "Stungwane" on 13 April 1968 (*vide* Plate 2 and 3). This indicated an interval between births of two years, five months and 10 days, which is considerably less than the four and a half years recorded for a cow in the Ioskop Nature Reserve in Transvaal, and is probably more in keeping with the natural average calving interval in the Zululand population. The cow named "Faai" gave birth to a bull calf "Numbi" on 28 March 1966 and to a heifer calf "Matupa" on 29 March 1969—i.e. almost exactly three years later (*vide* Plates 2 and 4). The fourth cow in the rhino enclosure i.e. "Mayemi" has not yet calved and appears to be sterile.

The rhino cow which remained in the company of a bull along the Tsende river in the northern district was first observed to have calved on 14 April 1965. The calf was about one month old at this stage. During an aerial survey on 17 September 1968 this cow was observed again together with her older calf and the bull, and this time she had a very young calf of only a month or so old at heel. In this case the calving interval would therefore be about three and a half years.

The first calf to be born to a free-roaming rhino cow was recorded on 21 November 1964 along the Nwaswitshaka river in the southern district.

Since that time a further 27 calves have definitely been born (excluding doubtful records) in the southern district, five in the central district and three in the northern district of the Park. Of these calves only one has been killed by lions (i.e. near Mkohlolo in the Gomondwane bush) and from the number of young and sub-adult animals recorded during aerial surveys it is apparent that all the important local populations are flourishing. The present minimum total of square-lipped rhinos in all colonised habitats within the Kruger Park must now be between 155 and 160 and this number is rising steadily.

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*not quoted in text

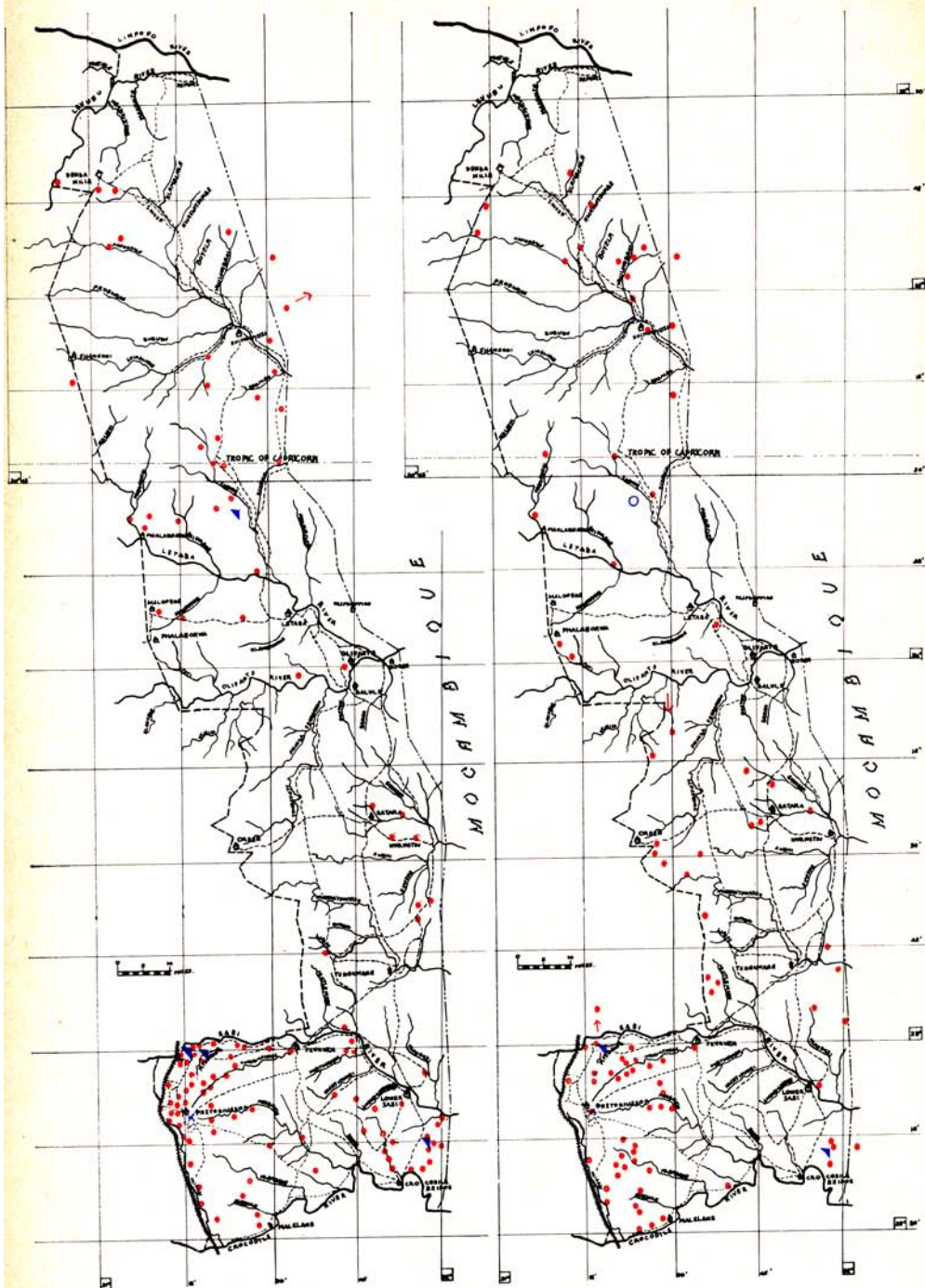


Fig. 1. SIGHT RECORDS OF NEWLY-RELEASED SQUARE-LIPPED RHINOCEROSSES.

27.5.63-25.5.64.

- ▲ - Release areas.
- × - Site of 'Faai' Rhino enclosure.

Fig. 2. SIGHT RECORDS OF SQUARE-LIPPED RHINOCEROSSES IN K.N.P.

25.5.64-29.9.64.

(End of 1st Phase of 'Operation Rhino').

- ▲ - Original release areas in Southern district of the park.
- - Release areas in Northern district of the Park.
- × - Site of 'Faai' Rhino Enclosure.

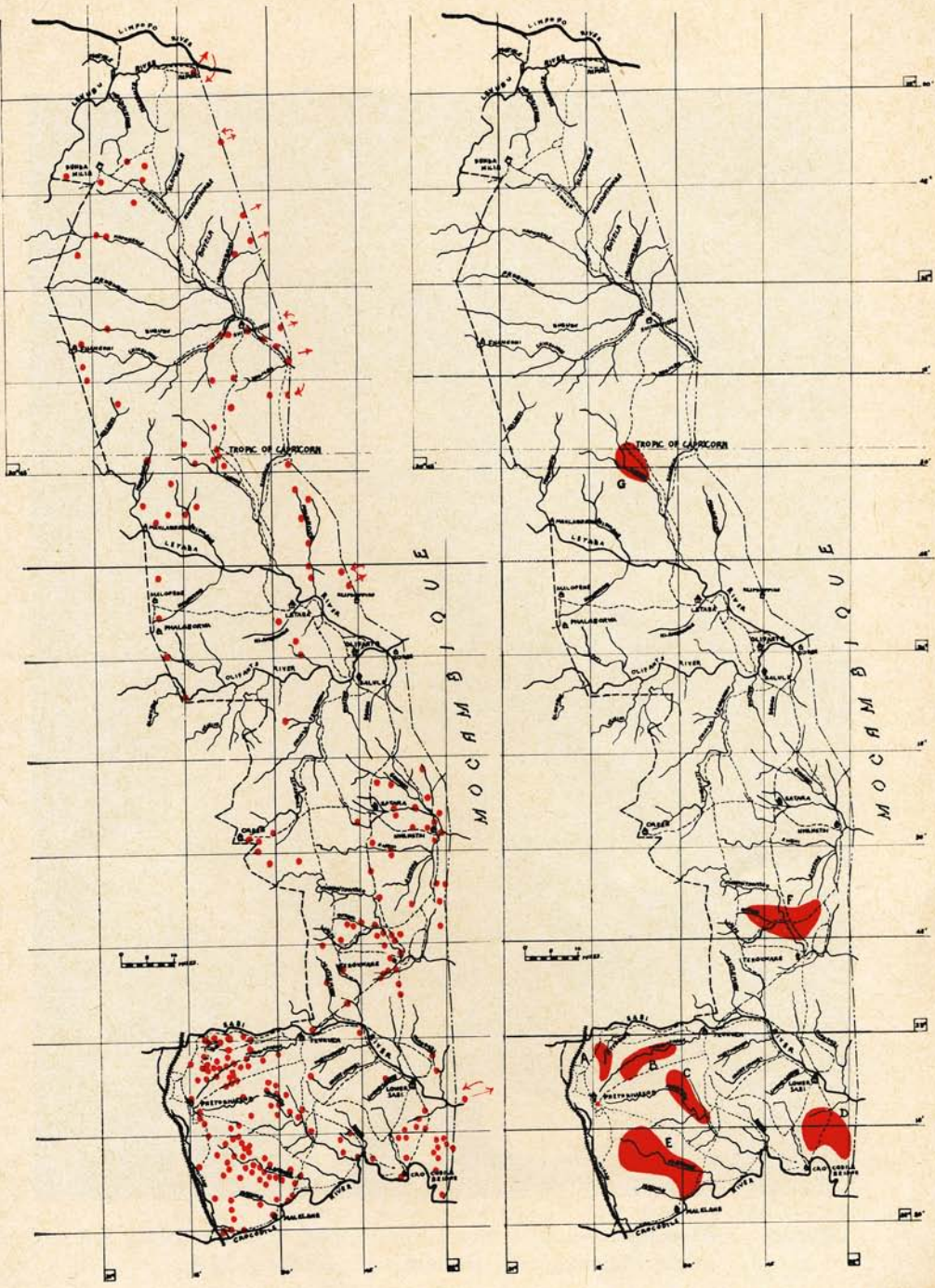


Fig. 3. SIGHT RECORDS OF SQUARE-LIPPED RHINOCEROSSES IN K.N.P. 29.9.64-30.6.69.

Fig. 4. IMPORTANT SQUARE-LIPPED RHINOCEROS HABITATS IN THE KRUGER PARK.

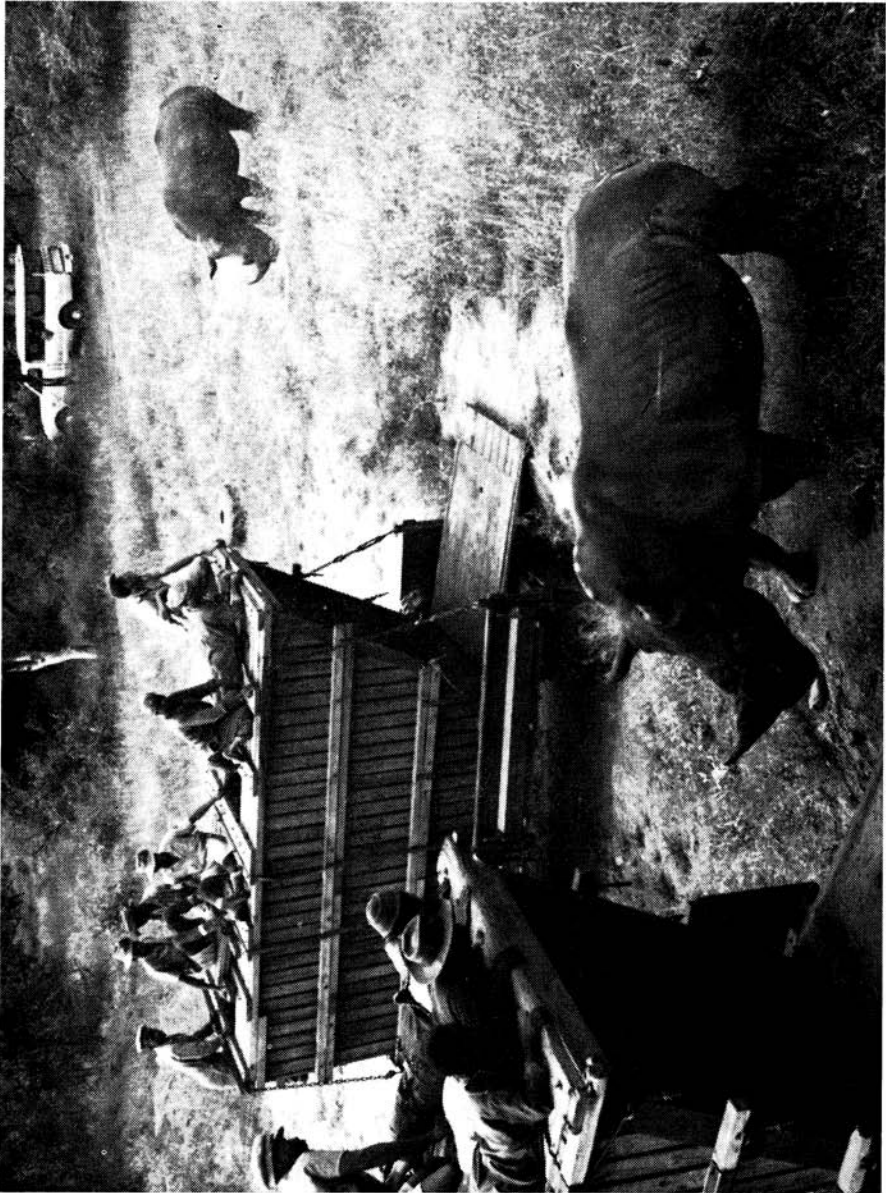


Plate 1. Two square-lipped rhinos from Umfolozi, Natal being released in the Malelane area of the Kruger National Park.



Plate 2. Square-lipped rhino cow "Kwangulatelo" with on her right, the bull-calf "Numbi" (three years and 14 days old), the calf of the cow "Faai", and her bull-calf "Shaben" (two years and 28 days old) on the extreme left. Photograph taken in the rhino enclosure 11 April 1969.



Plate 3. Square-lipped rhino cow "Mfolozana" with her elder bull calf "Manung" (three years, five months and eight days old) running ahead of her and her younger bull calf "Stungwane" (one year and two days old) alongside.

Photograph taken in the rhino enclosure 11 April 1969.



Plate 4. Photograph taken in the rhino enclosure 11 April 1969.
Square-lipped rhino cow "Faai" with her 13 day old heifer calf.

NUMBERS, DESTINATION AND FATE OF SQUARE-LIPPED RHINOCEROSES TRANSLOCATED FROM NATAL
TO THE KRUGER NATIONAL PARK
14 OCTOBER 1961 — 31 OCTOBER 1969

District of destination in Kruger Park	Release Area	No. of Rhinos accepted for translocation		Total translocated	No. died in transit or of injuries sustained in transit		No. released at destination		Subsequent Mortality and losses through straying out of Park			No. subsequently relocated from one release area to another		Total Rhinos remaining in release area or in adjoining areas of the Park			No. of Calves born (definite records see text) Oct. 1961—Nov. 1969		Present minimum totals of Rhinos in all colonized habitats within the whole Park					
		Males	Females		Males	Females	Males	Females	♂	♀	Sex Unknown	Males	Females	Males	Females	Total	Males	Females	Sex Unknown	Males	Females	Sex Unknown	Totals	
Southern district	Faai Rhino enclosure	4	4	8	—	—	4	4	1	—	—	—	—	—	2	4	6	4	1	—	6	5	—	11
1st Translocation period 14.10.61 — 29.9.1964	Doispanc-Skurukwane	27	32	59	1	2	26	30	3	1	—	+1	+1	24	30	54	—	—	—	—	—	—	—	—
	Mahlangzwane Panamama	8	7	15	—	—	8	7	1	1	—	—	—	—	7	6	13	—	—	—	—	—	—	—
Total (1)	Southern District	39	43	82	1	2	38	41	5	2	—	—	—	33	40	73	4	1	—	32	—	—	—	
Northern District 1st. Transloc. Period	Shipandane Mahlangene	13	3	16	1	—	12	3	8	—	—	—	—	4	2	6	—	—	—	3	4	2	3	9
Kruger Park Totals after 1st. Translocation period	Kruger Park	52	46	98	2	2	50	44	13	2	—	—	—	37	42	79	4	1	—	35	—	—	—	
Southern District 2nd. Translocation period 18.12.68—31.10.69	Mlamabane Malalane*	29**	14***	43	1	1	28	13	—	—	3†	—	—	26	12	38	4	1	—	32	63	53	32	148****
Kruger Park Totals after 2nd. Transloc. period	Kruger Park	81	60	141	3	3	78	57	13	2	3	—	—	63	54	117	4	1	—	35	67	55	35	157

*Two Rhinos were also released in the Pretoriuskop-area during this translocation period.

**Includes one male rhino captured in the Klaseri-area. Probably a stray from one of the private game reserves, but not claimed by the owners.

***Includes one adult female donated by Miliwane game reserve in Swaziland.

†Possibly two males and one female.

****This total includes a minimum total of 22 Rhinos which have strayed into the Central district of the Park, from the south and north, since the first rhinos were released in these areas in 1962.