

Jane

Kindly bring to the attention of James Hodgson see page 24

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TRANSLOCATION OF BLACK RHINO FROM ETOSHA TO THE
AUGRABIES FALLS NATIONAL PARK

for ENT report

Rhino file

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Control Research Officer
(Inland Parks and Coastal Areas)

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TRANSLOCATION OF BLACK RHINO FROM ETOSHA TO THE AUGRABIES FALLS
NATIONAL PARK

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INTRODUCTION

The black rhinoceros Diceros bicornis is one of the most threatened large mammals in Africa. The decline of the species has been due to loss of habitat in the past as the continent has become more settled and developed, and more recently to the intense pressure of poaching for rhino horn. In many areas of Africa black rhino populations have declined by more than 90% over the past decade and the decline is still accelerating.

The plague of poaching for rhino horn, which is sold in the Yemen for dagger handles and the Far East for medicinal purposes, has spread to southern Africa. Black rhino have been poached in the Zululand game reserves, in Damaraland, Kaokoland and in the Etosha National Park. In Kaokoland the population has been reduced to three individuals, the position in Damaraland is better due to timely action taken by the Endangered Wildlife Trust and the Directorate of Nature Conservation of South West Africa.

The African Elephant and Rhino Specialist Group of the IUCN (International Union for the Conservation of Nature and Natural Resources) has recently reaffirmed that the arid zone rhino and elephants of South West Africa are among the most important biological populations in Africa. It has urged that all possible steps be taken to conserve these animals.

An effective means of conserving part of the gene pool of the South West African rhino would be to translocate a small viable population to a safe breeding area elsewhere such as the Augrabies Falls National Park which lies in similar desert country in the northwestern Cape Province. In addition to safeguarding a population of these rhino, such an operation would be the first step in the recreation of a unique national park with most of the typical animals which formerly occupied the rugged lower Orange River area, Namaqualand and the Richtersveld.

BACKGROUND

The National Parks Board of Trustees of South Africa has developed into the premier nature conservation body in Africa. It has built up a formidable reputation as an efficient and successful conservation body. The Board has demonstrated its concern for the fate of rare large mammals as evidenced by the Addo elephants, Addo buffalo, Cape mountain zebra, roan and sable antelope among others. The Board has also shown a special interest in the black rhino and now has a thriving and viable population of about 120 black rhino of the Zululand subspecies Diceros bicornis minor in the Kruger National Park, and 15 of the Kenya subspecies Diceros bicornis michaeli in Addo.

The original Cape rhino D. bicornis bicornis is the nominate subspecies but is regarded by some authorities as extinct. Yet others are convinced that the black rhino of Damaraland and Etosha belong to this taxon. As the SWA rhino are geographically the closest to the Cape rhino (the distribution of black rhino was continuous from the Cape to Etosha) there is some merit in this suggestion. It must also be agreed that the Damaraland and Etosha black rhino are at the very least an ecotype, adapted to arid conditions, and take closest geographical population to the arid north west Cape region. They would thus on all grounds - ecological, genetic and practical be regarded as the logical choice for the founder stock for black rhino to be reintroduced to our arid zone parks such as Au-grabies.

One of the stated objectives of the national parks, is to reconstitute the fauna as it was before the advent of modern man. In the case of Au-grabies the black rhino would be a particularly spectacular addition

to the fauna as it was well-known in the area and the spectrum of large mammal species which occurred there and which could conceivably be introduced there is small.

NEGOTIATIONS

As it was known that the Directorate of Nature Conservation of South West Africa was interested in establishing a viable population of buffalo Syncerus caffer in the Waterberg Plateau National Park, the basis of an animal exchange transaction existed. An early consignment of buffalo sent to Waterberg in 1982 had settled down well, but more animals were needed to create an ideal breeding population. The only source of buffalo, because of foot-and-mouth and corridor disease considerations was the Addo Elephant National Park. The Addo buffalo are the only "clean" buffalo in Africa and the only source from which buffalo may be translocated.

A memorandum proposing the exchange of Addo buffalo for black rhino from South West Africa was submitted to the Management Committee of the National Parks Board late in 1983. The proposal was approved in principle and a more detailed report was submitted to the Board of Trustees. At its meeting in June 1984 the Board approved the project.

Subsequently negotiations were conducted with the Directorate of Nature Conservation in Windhoek and the exchange was formally agreed upon. This agreement, and the approval of the project was on the understanding that substantial sponsorship for the costs of the exchange would be found.

IDENTIFICATION OF PRIORITY AREA FOR INTRODUCTION OF RHINO

The project was examined in detail and in addition to Augrabies the Karoo and the Mountain Zebra National Parks were also considered as possible areas for the introduction of black rhino. A field assessment assisted by Mr P M Hitchins formerly of the Natal Parks Board and a leading authority on the black rhino as well as Clive Walker and Peter Joffe of the Endangered Wildlife Trust was carried out early in October 1984. Independent assessments of habitat in the three areas were also obtained.

When all the available information and opinions had been weighed up the following conclusions were arrived at:

1. The Augrabies National Park presented the best opportunity for the establishment of a small population of black rhino. The habitat was suitable, the climatic conditions were similar to the areas in Etosha from which the founding stock would be drawn, the rhino would not interfere with any other aspects of the park's objectives and the existing fencing could be easily upgraded. The small size of the park would, however, be a factor limiting the number of rhino which could be supported.
2. Though having suitable habitat the Karoo park presented a number of difficulties which made the introduction of black rhino undesirable at this stage. The final boundaries of the park have not yet been decided upon, nor has the zoning of the park into different areas,

there is also virtually no fencing of a suitable standard. The best area for rhino is far removed from the park headquarters, and the habitat is somewhat degraded and in need of rest and recovery.

3. The Mountain Zebra National Park, though having some suitable habitat is small and is used for walking trails. It is considered undesirable to introduce dangerous animals at this stage. The climate, with periods of cold wet weather is also thought to be inimical to black rhino. Should the park, however, be enlarged and better plains habitat be included then the introduction of black rhino should be reconsidered.

AUGRABIES FALLS NATIONAL PARK

The habitat is rated as very good for black rhino. A large number of the plant species found in the area north of the Orange River are also found in Damaraland where the rhino thrives. The carrying capacity of the area for small stock is rated at 4,5 ha per small stock unit. Though direct comparisons between smallstock (mainly goats) and the metabolic equivalent in terms of black rhino cannot realistically be made, it is clear that the area of the Park north of the river (4 038 ha) can provide food for at least 50 black rhino. Social factors would however limit this carrying capacity considerably. There is thus a clear need for enlargement of the area available to black rhino if a viable population is to be carried in the long term.

Although the Augrabies area is extremely arid with a mean annual rainfall of only 130,5 mm the quality of the forage is good. Before this piece of land (formerly known as the Bokvasmaak area) was proclaimed a park it supported 2 000 Boer goats, 1 000 sheep, 500 cattle and numerous donkeys. Though these large numbers of livestock resulted in severe over-utilisation of the veld it does give an indication of the capacity of this country for supporting animals.

There are several reliable historical records of black rhino near the Augrabies Falls, and local place names such as Renosterkop just to the east of the park are good indications of the former occurrence of the black rhino in the area.

In addition to the black rhino it is also clear that other species can be returned to Augrabies such as giraffe, gemsbok, red hartebeest,

springbok, kudu, ostrich and perhaps even Hartmann's mountain zebra. The black rhino could thus be part of the rebuilding of a spectacular natural community of large mammals in this national park.

ACQUISITION OF LAND

Adjoining the Augrabies park to the north and west is the Riemvasmaak area of some 70 000 ha which is controlled by the South African Defence Force. Only a small part of this large area is used for military purposes and part of this large area is earmarked as a conservation area. An approach has been made to the military authorities for the transfer of a large piece of the Riemvasmaak area to the National Parks Board to ensure adequate habitat for a large black rhino population. The preliminary negotiations have been most encouraging and are continuing.

An integral part of the proposals is that the park and the military conservation area should be managed as a single wildlife unit with different uses. In the case of the park the use would be for conservation, and later on game viewing, whereas in the military area the use could be conservation and recreational hunting of surplus animals (other than endangered species like black rhino).

If the final proposals are agreed upon, the military authorities would be expected to make a substantial contribution to the fencing which would be required. Such a fence would enclose both the park and the military conservation area.

ORIGIN AND NUMBERS OF BLACK RHINO

The Directorate has agreed to provide at least ten black rhino from the western parts of Etosha in exchange for thirty buffalo from Addo. The buffalo would be taken to the Waterberg Plateau National Park near Otjiwarongo.

LOGISTICS AND COSTS

The operation has been costed in various phases. Though as realistic and accurate as possible it is expressly understood that there may be escalations in the prices used. The costs are summarised below and given in more detail in Appendices to this report.

1. Summary of costs

a) Capture operations

Capture and holding of ten black rhino in Etosha	R 9 000
Capture and holding of thirty buffalo in Addo	5 600
	<hr/>
	R14 600

b) Transport

Transport of ten rhino from Etosha to Augrabies	R 9 257
Transport of 30 buffalo from Addo to Waterberg	16 470
	<hr/>
	R25 727

c) Holding facilities

Holding facilities (bomas) at Augrabies	R19 615
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d) Fencing

Reinforcing existing fencing at Augrabies: Option 1.....	R83 340
" " " " " Option 2.....	41 580
" " " " " Option 3.....	28 260
Construction of new fencing	<hr/> +R150 000

e) Follow-Up and Monitoring

Vehicle 4X4 for biotechnician (Land Rover or Ford F250) R21 000

f). Running costs of project

Vehicle running costs and general operating costs	6 900
Radio telemetry equipment (for ten rhino)	R15 000
Equipment for biotechnician	4 000
Housing for biotechnician	2 500
Salary for biotechnician	20 000
Assistant for biotechnician	2 000
	R50 400

The above breakdown of the costs of the operation and its followup actions are given so as to place all aspects of the project in their correct perspective. Though sponsorship for all phases of the project would be welcomed by both the National Parks Board and the SWA Directorate of Nature Conservation it may be assumed that these two organisations would carry part of the costs of the operations. These would most likely be the capture costs and part of the fencing costs. A formal approach will also be made to the SADF for part of the fencing costs.

2. Transport

There are several alternatives to be considered. The most efficient means of transport would be to use the Natal Parks Board rhino trailer or the trailer of Pilanesberg National Park both of which can take 6 or 8 black rhino depending on size. Either way it would require two trips to transport ten rhino from Etosha to

Augrabies. Another possibility is the use of individual crates belonging to the SWA Directorate. These crates can be transported on 7-ton trucks, but the entire operation would then be considerably more costly than two trips with the large trailer.

- a) The Natal Parks Board would lend their rhino transporter (horse and trailer) at R0-95 per km. The use of the trailer alone would cost 30c per km, but the horse would still have to be budgeted for at R0-65 per km.
- b) Pilanesberg will make their trailer available at R0-30 per km.
- c) Whether one used the Natal vehicles or a combination of horses and trailers from other sources would make little difference to the order of magnitude of the transport costs.
- d) A further possibility mentioned by the Natal Parks Board Game Capture Officer (Mr. Keith Meiklejohn) is that the Natal Parks Board may have two delivery trips for white rhino to South West Africa planned for mid-1985. In such an event they would be prepared to let the vehicle be used to transport black rhino to Augrabies on its return journeys.
- e) The transport of the buffalo from Addo to Waterberg is considered as an integral part of the cost of the entire project. For this operation the Pilanesberg trailer could be used, or a smaller truck fitted with the National Parks Boards own game holding pens could be used. This caters for eight buffalo and can fit on the back of a 7-ton truck.

3. Vehicles

In addition to the loan of vehicles or subsidy for the transport operations there is a further requirement of a 4X4 vehicle for the researcher to carry out the monitoring operation which would last at least one year, preferably longer. This vehicle could be a pick-up or closed vehicle. The loan of a Ford County 4X4 tractor with post hole digger would certainly make a difference to the fencing operations. Such a vehicle with an appropriate trailer could also be kept on hand for at least a year, together with a rhino crate, so as to be ready to rescue any animal that had to be returned to the bomas.

4. Follow-up and monitoring operation

To ensure the safety of the black rhino during their period of acclimatisation at Augrabies and the settling-in period it is proposed that they will be intensively monitored. Each animal will be fitted with a radio transmitter (most likely embedded in a horn) and located and checked out daily. Should any animal get into difficulties or be at risk, it could then be immobilised and returned to a boma for the necessary care and attention.

ADVANTAGES OF THE PROJECT TO SPONSORS

Previous game translocation exercises have shown that the public respond very positively to what is generally perceived as a most worthwhile cause. That black rhino are an endangered species will also make this project attractive and gives scope to any sponsor to use the operation and the animals in advertising. The National Parks Board and the Directorate would offer their full co-operation to the publicity requirements of a major or only sponsor. This would include facilities for filming the rhino capture in Etosha or the buffalo capture at Addo, the holding of animals in pens prior to transport, the transport operation itself, the release of the animals and the follow-up operations. Not only would the sponsor be able to get exposure on advertising but it is almost certain that there would be appropriate news coverage by the SABC. The sponsors could expose their logo and their products.

In the final analysis, however, the demonstration of corporate responsibility and the image of an organisation which cares for endangered creatures and which is prepared to assist in re-creating a viable national park system, in a unique environment, of which there is very little in the Republic, would be a considerable pay-off.

APPENDIX 1: SUMMARY OF PROVISIONAL COSTINGS FOR ACQUISITION OF BLACK
RHINO FROM SOUTH WEST AFRICA FOR AUGRABIES NATIONAL PARK

A) Capture, transport and holding, follow-up

APPENDIX 2:	Capture and holding of black rhino, Etosha	R 9 000
"	3: Transport of black rhino SWA/RSA	9 257
"	4: Holding pens Augrabies	19 615
"	5: Capture and transport of buffalo, Addo/Waterberg..	16 470
"	6: Follow-up, monitoring operation.....	74 900
		<hr/>
		<hr/>

FENCING

		<u>Wire rope options</u>		
		<u>New</u>	<u>Purchased used</u>	<u>Donated</u>
APPENDIX 7:	Strengthening of Augrabies			
	fence	R83 340	R 41 580	R 28 260
"	8: Fencing of Riemvasmaak/Augra-			
	bies area to equivalent of			
	Natal Parks Board Standards ..	-	-	+ R150 000

APPENDIX 2: PROVISIONAL COSTINGS FOR CAPTURE OF BLACK RHINO IN ETOSHA
NATIONAL PARK

This capture operation will be in the Otjovasandu area where permanent holding pens are situated.

1.	Positioning flight for helicopter from Windhoek, 2 hours .	R 800
2.	Reconnaissance and searching flights in helicopter, 5 hours @ R400 per hour	R2 000
3.	Darting flights for 10 rhino at one hour per rhino @ R400 per hour	R4 000
4.	Feeding and care of black rhino at R20 per day, max. of 15 days from date of 1st capture assuming rhino caught one per day from day one of capture operation. Total days feed required: 110 X R20	R2 200
	TOTAL	<u>R9 000</u>

APPENDIX 3: PROVISIONAL COSTINGS FOR TRANSPORT OF BLACK RHINO FROM
SOUTH WEST AFRICA TO AUGRABIES.

Assuming hire of Natal Parks Board rhino transporter at R0-95 per km.

a) Positioning of transporter Umfolozi - Otjovasandu (empty): 3 400 km @ R0-95	R 3 230
b) Otjovasandu - Augrabies (6 rhino) 1 600 km @ R0-95 ...	R 1 520
c) Return Augrabies - Otjovasandu 1 600 km @ R0-95	R 1 520
d) Otjovasandu - Augrabies (4 rhino) 1 600 km @ R0-95 ...	R 1 520
e) Augrabies - Umfolozi (empty) 1 545 km @ R0-95	R 1 467
	<hr/>
	R 9 257
	<hr/>

APPENDIX 4: PROVISIONAL COSTINGS FOR HOLDING PENS FOR BLACK RHINO IN
AUGRABIES NATIONAL PARK

These pens should be built larger than the usual temporary bomas so that if veld conditions appear unsuitable, or if the rhino arrive before the fencing is up to standard then the animals can be held for an extended period. The costings are made for 30 days which is a sufficient period for acclimatisation and familiarisation with new food which will be fed to the rhino.

1. Holding pens: Each pen will be 10m X 10m, constructed of treated and untreated gum poles 3,0m long and 15cm in diameter. The poles will be planted vertically, close together. Corner poles and every 5th and 6th pole will be embedded in 1m of concrete. Intermediate poles will be planted 1m in the ground. Corner poles will be treated, and the rest untreated. Cable (wire rope) threaded around and between the poles at ground level and at 1,9 m will bind the poles together or poles will be lashed to the structure horizontally. Part of the boma will be covered to provide shade. Details of design will follow Natal Parks board specifications (except for size which is larger). Each pen will have a raised concrete water trough. These pens will be built in two parallel series for 5 rhino each. Each pen will have access to a larger area 50 X 20m joining the two rows of pens into which the animals can be rotated while individual pens are cleaned and maintained. This area will have a pole and 6 strand cable fence on the sides.

a)	Main poles (2 200) at R3-00 each	R 6 600
b)	Droppers (500) at R2-00 each	1 000
c)	Used wire rope 10mm diam. (2 500m) @ R0-37 per m.	925
d)	Plastic piping (500m) at R218-00 per 100m	1 090
e)	Contingencies, clamps, wire, cement, taps, bricks roofing	1 000
2.	Transport of material to Augrabies	2 000
3.	Feeding of rhinos at R15 per rhino per day for 30 days	4 500
4.	Transport of lucern to Park	500
5.	Labour	2 000
		<hr/>
		R19 615
		<hr/>

APPENDIX 5: PROVISIONAL COSTINGS FOR CAPTURE, CARE AND TRANSPORT OF
 ADDO BUFFALO FOR SOUTH WEST AFRICA

As part of the deal with SWA we have been asked to catch and deliver the buffalo to the Waterberg Plateau National Park near Otjiwarongo. The capture operation would be done as part of the regular cull at Addo in 1985 and 1986.

1. Capture costs for 30 buffalo at R150-00 per buffalo	R 4 500
2. Feeding of 30 buffalo for arbitrary periods of 5 days for each of 3 batches of 10 animals at R5-00 per buffalo per day, all inclusive	750
3. Transport using horse and covered trailer or large truck at about R0,85 per km. Three return trips Addo to Waterberg at 4 400 km each	11 220
	<hr/>
	R16 470
	<hr/>

APPENDIX 6: PROVISIONAL COSTING FOR FOLLOW-UP AND MONITORING OF BLACK RHINO INTRODUCTION AT AUGRABIES

The introduction exercise cannot be regarded as completed when the rhino have been released into the park. Rather, it is only complete once the animals have settled into a stable social order within the boundaries of their new range. Because the terrain at Augrabies is extremely rugged there is also an outside chance that animals could injure themselves and die. Such deaths could be avoided if the equipment to effect a rescue operation was on stand-by. The most useful in that terrain is likely to be a Ford County 4X4 with sledge or trailer-mounted crate or a Unimog.

A further reason to check on the condition of the animals regularly is to ensure that they adapt to their new food sources successfully. If they experience difficulties it will be necessary to temporarily supplement their feeding. This can only be done successfully if the ranges of the animals are known and food can be put out for them at places where confrontations between animals are unlikely.

The follow-up exercise is planned to last at least one year and will be done by a biotechnician who is experienced in field work, handling of rhinos, and can also take on the responsibility of caring for the animals while they are in the bomas. To facilitate the follow-up and identification of animals each one will be marked and fitted with a small radio-transmitter embedded in a horn.

The budget for the monitoring operation is as follows:

1. Vehicle

A 4X4 pick-up (Land Rover 110 or Ford F250) will be essential. Such a vehicle would cost about R22 000

Running costs would be about R0-30 per km and should be budgeted for a maximum of 1 500 km per month for 12 months 5 400

2. Equipment

In addition to the radio-tracking equipment the biotechnician would require various other pieces of equipment such as camera, tele-lens, binoculars, two-way radio, first aid and survival kit, camping equipment, minimal office equipment, dart gun, darts, tools

3. Operating costs

These would be minimal and would include such sundry items as postage, telephone, lights and water, stationery, chemicals (for darting rhino), gas, travel and subsistence allowance 2 400

4. Salary

The person identified for the job would qualify for the rank of Senior Biotechnician and could command a salary commensurate with the upper level of such a post 20 000

5. Housing

As the person will only be involved with the project for one year it is expected that temporary accommodation at Augrabies could be renovated to provide simple but comfortable quarters

..... 2 500

6. Assistant

The biotechnician could usefully do with the services of a game scout to assist him in the field

2 000

7. Radio-telemetry equipment

This includes ten radio transmitters to be fitted to the rhino, a receiver and antennae

15 000

R71 400

APPENDIX 7: PROVISIONAL COSTING FOR REINFORCING FENCING AT AUGRABIES
NATIONAL PARK

The existing fence is likely to be adequate for black rhino under most circumstances, absolute security can only be ensured if two light cables are added to the fence at about ground level and 40 cm above ground. To carry the weight it is estimated that a stronger pole (steel) or 175-200 mm thick treated gum pole will be required every 50 m.

The use of electrified fences has been investigated and not found to be entirely suitable to application in such a dry area. The question will be investigated further. However, it should be noted that black rhino can normally be easily restrained by standard game fencing without heavy cables. However, the only two cases reported of black rhino breaking through game fences in Etosha and Zululand was when two bulls were engaged in fighting. Under such circumstances it is highly unlikely that the electric fence would deter such aggressive animals and they could well then break through such a fence.

OPTION 1

The costs per km are therefore:

20 X 2,5 m, 175-200 m gum poles @ R3-50	R	70
2 000 m X 10mm diam. wire rope @ R1-78 per m		3 560
Labour, other materials		500
Transport of materials		500
		<hr/>
		4 630

The Augrabies fence north of the Orange River is about 18 km

long. Total cost of upgrading fencing using new cable is

18 X 4 630	83 340
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OPTION 2

It is likely that used cable from various sources could be purchased at about R370 per 1 000m. As this cable is likely to be thicker than the 10 mm wire rope suggested above the transport costs are likely to be higher. The costs per km would then be reduced to:

R	70	20 X 2,5 m, 175-200 m gum poles @ R3-50
	740	2 000 m cable @ R370 per 1 000 m
	500	Labour, other materials
	1 000	Transport of materials
<u>R</u>	<u>2 310</u>	Total costs therefore 18 X R2 310

R41 580

OPTION 3

If all cable is donated to the National Parks Board then the costs are reduced to:

R	70	20 poles
	500	Labour, other materials
	1 000	Transport of materials
<u>R</u>	<u>1 570</u>	Total costs therefore 18 X R1 570

R28 260

APPENDIX 8: PROVISIONAL COSTING FOR FENCING ENLARGED AUGRABIES/
RIENVASMAAK AREA

The objective is to have a rhino-proof game fence around the entire Augrabies National Park and Riemvasmaak military conservation area. The costing has been made for materials and labour for a standard 13 strand game fence erected by contractors (G. Harrop-Allen) with the addition of a stronger 15 cm diameter treated gum pole (or steel equivalent) every 50 m. The fence will be further strengthened by two light cables close to ground level and 40 cm above ground.

It may be that the SADF and Parks Board staff could erect such a fence at a lower cost. This will be investigated once agreement has been reached on the exact area to be included. Specifications will also be re-assessed in the light of available funds. The exact new boundary is also not known at this stage, but will probably make about 5km of the existing Augrabies fence redundant. This material could be recovered and used again.

To keep costs down the calculations have been made only on the basis of using purchased second-hand wire rope and donated wire-rope.

OPTION 1

Using purchased second-hand wire rope at R370 per 1 000 m the costs per km would be:

Standard game fence	7 000-00
Two strands wire-rope	740-00
15 cm treated poles @ R3-00 X 20	60-00
Extra labour, binding for cables, transport..	300-00
	<u>R 8 100-00</u>

OPTION 2

Using donated cable (wire rope) the cost per km would be:

standard game fence	7 000-00
15 cm treated poles @ R3-00 X 20	60-00
Extra labour, binding for cables, transport..	300-00
	<u>R 7 360-00</u>

The total cost for a fence estimate at 20 km long would be:

Option 1:	= R 162 000-00
Option 2:	= R 147 200-00