



REPUBLIC OF NAMIBIA
MINISTRY OF ENVIRONMENT AND TOURISM

Enq: P. du Preez
Tel: (061) 237551
Fax: (061) 295101
E-Mail: dupreez@mweb.com.na
Ref: N 13/2

Research and Planning
Private Bag 13306
Windhoek

May 10, 2006

To: SRI
EAZA

KUNENE BLACK RHINOCEROS CAPTURE AND TRANSLOCATION MARCH AND APRIL 2006

INTRODUCTION

The North West (Kunene) black rhinoceros population is the largest population of black rhinoceros (135+ known animals) outside a protected area in the world and has increased from the brink of extinction in the 1960's to the current situation today where portions of this population has reach and over shot carrying capacity. This success story was achieved through strong partnerships between the Ministry of Environment & Tourism (MET), NGO's (Save the Rhino Trust) and most importantly the local people in the Kunene and Erongo Regions.

The African Rhino Specialist Group (AfRSG) identifies the Kunene/Erongo black rhinoceros population as a **Key 1** population and as its existence is critical for the survival of the *D. b. bicornis* subspecies. This population will in future serve as the source of animals making up the founder groups on communal conservancies in the historical range within the Kunene Region.

Current recommended biological management for optimum growth requires population estimates which are derived from ground censuses every five years. Annual growth over the last 5 years stands at 2.5% and dropped below 2% in 2003. This is well below the IUCN/SSC recommendation of at least 5%.

Biological management to keep this population growing at its optimum has become a priority as the annual growth rates of the Kunene black rhinoceros have steadily declined as the population grew over the last 15 years. This is a direct result of the population in areas reaching and even exceeding ecological carrying capacity. Also, new challenges now face the area, particularly the need to secure the long-term sustainability of monitoring programmes and to further integrate tourism with conservation objectives.

Objectives of the 2006 operation were:

- Mark and fit identified individuals with radio transmitters in the high density area for possible translocation in 2007;
- Translocate two males from the high density area to #Khoadi - //Hôas conservancy to test equipment, translocation procedures and monitor the success / failure of the procedures used;
- Facilitate eco tourism in #Khoadi - //Hôas through controlled rhinoceros tracking as been practiced in Palmwag Concession Area;

- Mark and fit radio transmitters to as many animals in Torra conservancy to facilitate monitoring and eco tourism;
- Enable monitoring from the air in very difficult and remote areas;
- Training of MET personnel, key conservancy and NGO staff; and
- To enable #Khoadi - //Hôas and Torra communal conservancies to receive increased status as rhinoceros custodians under the MET Black Rhinoceros Custodian Programme.

BACKGROUND

Being an extremely arid area all translocations with the aim to expand the current black rhinoceros range into identified areas within neighbouring communal conservancies should be well planned and MET should be able to react on a short notice when conditions are at the best for the rhinoceros to be translocated. It is crucial that surface water and peak conditions prevail at the identified release sites to ensure the best chance if such an operation is to succeed on the short and long term.

Specific individuals were identified from the Kunene data base and earmarked for capture and fitting of radio transmitters in 2006 (24th March – 4th of April 06), these individuals could be found at very short notice when conditions are ideal in 2007 for possible translocation to new areas. As a result thirteen animals (seven males and six females) were fitted with transmitters in 2006 in the upper Barab and Aub rivers of the Palmwag Concession area.

Reasons for choosing this area were:

1. Highest density of black rhinoceros within the current range;
2. Skewed towards males; and
3. Close or at carrying capacity.

Once conditions are at their peak in the release sites during 2007/8 the individuals will then be located by air, caught and moved immediately to the release site. Free release as practiced in Namibia has given us excellent results over the last three capture seasons and cuts down the tremendous costs of boma training animals and will be used as the preferred method.

During the last Biological Management Workshop held at Grootberg with the Governor (Mr. Mururuo) his councilors, the Traditional Authority (Chief J. Garoëb) and his leaders, Conservancies, NGO's (SRT, IRDNC and Welwitchia), MET, private tourism enterprises in the area (Wilderness Safaris, Damaraland Camp), Round River Conservation and DICE (Univ of Kent) it was recommended that the first step should be in the testing of equipment and translocation procedures involving male animals. For that reason two males were translocated from the upper Aub and Barab rivers to the Kliprivier in the #Khoadi - //Hôas Conservancy.

Lastly a further nine animals were marked and fitted with transmitters in the Poacher's camp and Springbok river area of the Torra Conservancy. This was done to assist the community to get controlled and sustained rhinoceros tracking with paying clients.

OPERATION

Helicopter (Funded by WWF-ARP and Wilderness Wildlife Trust)

Due to the altitude above sea level, extremely mountainous terrain as well as the high temperatures experienced, a turbine helicopter with the capabilities to dart animals with four people in the helicopter was used. The helicopter was further used to ferry emergency equipment for example oxygen, a chain saw, water, equipment needed to fit radio transmitters and personnel into areas which could not be reached by vehicle.

The Bell Jet Ranger used proved beyond doubt its value in this area and for this type of work and should be the minimum size helicopter used in future operations.

Fixed wing (Funded by SRT and ICEMA (FFEM))

A C172 was used as a spotter aircraft with highly experienced staff from SRT this facilitated in finding animals, guiding the helicopter to the animal to be caught and guided the vehicles to the capture site. It was also used to locate and check on already processed animals. Although the C172 is a bit small to be used in this area and a bigger aircraft would be better the spotter aircraft saved a lot of money and was an essential part of the success of the operation.

Equipment (Funded by GPTF, EAZA – Opel Zoo)

Rhinoceros Recovery Truck

The Rhinoceros Recovery Truck proved its value and was a major success with all needed equipment immediately available for processing of the immobilized animal. Having all equipment neatly sorted out and ready to use made a huge difference to the speed in which an animal could be processed. All equipment were tested and used and through positive comments of all involved will be improved.

Black rhinoceros retrieval trailer

This trailer was designed by R&P staff and built locally in Windhoek for use under extreme conditions; the whole retrieval system was a novel approach and withstands the most stringent tests in terrain where the only other possibility was the airlifting of animals by helicopter. The trailer will be improved on and some minor changes will be made. Two animals (a mature and a young adult bull) were successfully translocated from some of the most inaccessible terrain.

Money for a second trailer will be sourced to increase the recovery fleet to at least two trailers.

Black Rhinoceros Crate

A special crate based on designs from SANParks were built and a proto type tested on the operation, minor changes will be made to decrease its weight and furthermore to make it more animal friendly. This crate proved itself under the above conditions and makes future translocations a real possibility in this type of terrain. Another two crates will be built with available donor funding.

Training

A major component of the operation was to train not only MET staff but also SRT, Conservancy Game Guards or Shepherds, IRDNC and other stakeholders in:

- Capture and translocation equipment;
- Ear notching equipment;
- Use of a spotter aircraft;
- Guiding of ground team and helicopter to capture site using radio communication;
- Ultra sound pregnancy testing equipment,
- Dental impression equipment;
- Implantation of horn radio transmitters;
- Use of radio receivers;
- Transporting of animals;
- Release procedure; and
- Monitoring of newly released animals.

Veterinarian

The veterinarian was Dr. Pete Morkel, a Namibian who is currently working for FZS in Tanzania. Dr. Morkel a previous MET Game Capture Veterinarian, is the world authority on rhinoceros capture and translocation and has been assisting MET with all major rhinoceros captures since 2001. He was assisted by Dr. Mark Jago, a private Namibian veterinarian. In an operation of this magnitude and under these conditions a second veterinarian is of utmost importance as he reduced down-time significantly as the workload can be shared looking after the welfare of the immobilized animal.

Dental expert

We were fortunate to have Mr. P. Hitchins, the original developer of using dental records for the ageing of black rhinoceros in the late 1960's early 1970's. Mr. Hitchins gave guest lectures to all present during the capture operation, Round River students and EEI and DPWM staff in Etosha. He trained staff on all animals that were immobilized in the field.

Capture procedure

- a. Ground team left camp at Palmwag between 5H30 and 06H00 to a central locality within the area demarcated for the capture.
- b. As soon as light conditions allowed, experienced trackers from SRT followed fresh tracks.
- c. The spotter aircraft manned by the pilot and one or two experienced trackers got airborne and start to search the designated area.
- d. The helicopter with the pilot, veterinarian and two experienced trackers on board searched the capture area in close liaison with ground tracking teams and spotter aircraft.
- e. As soon as a rhinoceros was spotted the spotter aircraft guided the helicopter and ground team to the locality.
- f. Once the rhinoceros was darted the spotter aircraft guided the ground team in over the shortest or best route.
- g. Where it was impossible for the ground team to reach the immobilized animal, core members of the ground team were flown in by helicopter with equipment to process the animal in the shortest time possible.
- h. Every evening a full debriefing session were held concerning the activities that took place that day and was then followed by planning for the next day.

Between four and five animals were processed per day except on day one and day two when the two animals caught were translocated from the upper Barab – Aub to the Kliprivier in #Khoadi - //Hôas Conservancy.

Results

Table 1. Animals translocated from Palmwag Concession to #Khoadi - //Hôas Conservancy

	DATE	AREA	DESTINATION	SEX	Total
1	26/3/2006	Barab – Aub (Palmwag Concession Area)	Kliprivier	Male	1
2	27/3/2006	Barab – Aub (Palmwag Concession Area)	Kliprivier	Male	1
	Total translocated to #Khoadi -//Hôas Conservancy				2

Table 2. Animals marked and fitted with radio transmitters and released in Palmwag Concession area

	DATE	AREA	SEX	Total
1	28/3/2006	Barab – Aub (Palmwag Concession Area)	Male	1
2	28/3/2006	Barab – Aub (Palmwag Concession Area)	Female	3
3	29/3/2006	Barab – Aub (Palmwag Concession Area)	Male	3
4	29/3/2006	Barab – Aub (Palmwag Concession Area)	Female	1
5	30/3/2006	Barab – Aub (Palmwag Concession Area)	Female	2
6	30/3/2006	Barab – Aub (Palmwag Concession Area)	Male	3
	Males marked			7
	Females marked			6
	Total marked and fitted with transmitters Palmwag Concession Area			13

Table 3. Animals marked and fitted with radio transmitters and released in Torra Conservancy

	DATE	AREA	SEX	Total
1	1/4/2006	Torra Conservancy (Poacher camp)	Male	3
2	1/4/2006	Torra Conservancy (Poacher camp)	Female	2
3	2/4/2006	Torra Conservancy (Springbok river)	Male	2
4	2/4/2006	Torra Conservancy (Springbok river)	Female	2
	Males marked			5
	Females marked			4
	Total marked and fitted with transmitters Torra Conservancy			9

COSTS (Summarized in Table 4)

Personnel

All DSS personnel involved agreed to claim N\$70.00 per day camping allowance and agreed further not to claim any overtime but rather be compensated through time off.

Aircraft

A Cessna 172 and pilot from SRT were used as the spotter aircraft and all fuel was sponsored by ICEMA (FFEM) while the pilot and maintenance costs were paid by SRT.

Helicopter

A Bell Jet Ranger was used and the costs were fully sponsored by WWF-ARP, Wilderness Wildlife Trust (WWT), ICEMA (FFEM). H. Du Preez Wild supplied the helicopter and pilot at a reduced hourly rate.

Equipment

The custom equipment, modifications made to the Rhinoceros Support Vehicle and the manufacturing of the custom crate and trailer was funded through the GPTF and EAZA (Opel Zoo). Bosch donated a cordless drill and Dunlop tyres for both the trailer and the support vehicle.

Veterinarians

Dr. P. Morkel was the veterinarian in charge and was funded through ICEMA (FFEM), Dr. Mark Jago volunteered his services free of charge.

Vehicles

All the vehicles used were 30 series vehicles and the running costs were paid by MET. ICEMA made one Land Cruiser pick up available at no costs.

Supporting personnel

Staff from SRT, #Khoadi - //Hôas Conservancy, Torra Conservancy and Wilderness Safaris volunteered free of charge to assist. It is important to mention that without the SRT trackers the operation would have been impossible. In Torra Conservancy the Torra Game Guards assist in finding and identifying all animals immobilized.

Transmitters

Transmitters were bought through the DSS budget.

Receivers and antennas

Two receivers were bought by ICEMA (FFEM) one was handed over to the #Khoadi - //Hôas Conservancy and Grootberg Lodge and one was handed to SRT for the training of Torra Conservancy and will be used by Torra Conservancy. One receiver set was bought through Wilderness Wildlife Trust and will be used by SRT.

Drugs

Costs for drugs were funded through ICEMA (FFEM) and WWT.

Ultra Sound Equipment

Imported ultra sound equipment (Aloka 700) used to determine pregnancy in immobilized female rhinoceros was funded by the GPTF.

Transponders

Transponders were funded by WWT.

Electric fence and water installation for #Khoadi - //Hôas Conservancy

A borehole was equipped with a solar system and an electrified fence was erected in the Klip Rivier as part of the introduction programme in the exclusive wildlife zone of the conservancy and was funded by ICEMA (FFEM).

Table 4. Break down of funding and MET costs

Description	Total	EAZA	WWF - ARP	GPTF	ICEMA (FFEM)	WWT	MET
Direct Costs of the operation (24 animals @ N\$ 11,362.00 per animal)							
Personnel costs	8 staff						4,474
Transmitters	24 units						33,480
Vehicle costs	4 vehicles						8,146
Receivers	3 units				7,825	17,841	
Helicopter	23.2 hrs		85,392			32,000	
Fix wing fuel	12 drums				17,940		
Veterinarian	One				30,300		
Drugs	24 animals				33,861		
Transponders	24 units					1,440	
Sub Total			85,392		89,926	51,281	46,100
Total from funding						226,599	
Total from MET							46,100
Funding received for equipment etc. to make the operation possible							
Ultra Sound	Aloka 700			155,000			
¹ Water Installation and Electric fence	One water installation and one electric fence				178,500		
² Specialized equipment	Crates, trucks, support vehicle	225,875		280,000			
Sub Total		225,875		435,000	178,500		
Total other funding received						839,375	
Total		225,875	85,392	435,000	268,426	51,281	46,100
Total from funding						1,065,974	
Total from MET							46,100
Grand total							1,112,074

¹ These improvements were made for the conservancy although facilitated through the project.

² All equipment are also for further operations and all equipment were field tested on this operation.

CONCLUSION

This operation was a huge success and direct cost to MET was only N\$ 46,100.00 which translates to N\$ 1,920.00 per animal. However, the actual cost was N\$ 11,362.00 per animal. For the 2005 capture operation the costs was estimated to be N\$ 42,577.33 per animal; N\$ 31,215.00 more expensive per animal than in 2006.

An important factor was that the helicopter time was reduced from over two hours per animal in 2005 to less than an hour in this operation, furthermore only essential staff and vehicles were used during the operation cutting down on S&T and all staff agreed not to claim overtime. The specially developed and designed capture and translocation equipment ensured furthermore that the operation could be conducted without the use of any heavy trucks and equipment. The duration to fully process one animal during 2005 was on average 1¾ of an hour and in 2006 only 55 minutes with more procedures done in 2006.

The specially designed and custom built capture equipment proved its value under some of the most extreme conditions, the important result of the field trails is further that modifications needed will now be

done before the rest of the equipment is manufactured. This system will furthermore prove its value as a quick reaction unit.

RECOMMENDATIONS

1. Only essential well trained staff should be involved in the direct processing of the immobilized animal, fewer staff around the animal is far more effective.
2. Staff should be well trained in the different techniques and staff involved with rhinoceros capture should be able to do all the tasks. Further training depending on the availability of funds will be conducted later this year in Kaross to built ENP staff capacity.
3. Equipment should be well maintained and serviced before an operation to minimize standing time due to vehicle or equipment break down.
4. The operation should be coordinated and be controlled by one experienced senior staff member.
5. If possible a turbine helicopter (e.g. Bell Jet Ranger) although more expensive than a small helicopter (Hughes 300) should be used as the big helicopter can carry four passengers with ease, far safer to operate under high temperatures, faster and save therefore on ferry time and can be used to transport equipment and essential staff to the immobilized rhinoceros.
6. Essential staff should be ferried to the immobilized animal so that processing can take place as soon as possible, ground support and the retrieval crate sometimes take a significant long time to reach the immobilized animal at which time the animal is already processed and ready for loading.
7. Two veterinarians of which one must be highly experienced (e.g. Dr. Morkel) ensure that the immobilized animal received the best possible veterinary care.
8. The custom designed and built equipment is far cheaper as maintaining big trucks and the replacement thereof is far cheaper than the heavy equipment currently in use, especially for smaller operations.
9. A spotter aircraft as well as trackers are essential to keep cost low, these personnel should be from the area and have intimate knowledge of the rhinoceros in the area. The SRT trackers knew the area and through their knowledge of the animals' resident in the area ensured that animals were found speedily and therefore minimized helicopter and fix winged costs.
10. An experienced Game Capture pilot (e.g. J. Du Preez) is essential for the effective use of the helicopter and minimize stress which happens if the animal runs excessively before darted.

Pierre du Preez
CCS R&P
Rhinoceros Co-ordinator

ACKNOWLEDGEMENTS

Donors:

- Game Products Trust Fund (GPTF);
- Worldwide Fund for Nature African Rhinoceros Programme (WWF-ARP);
- European Association of Zoos and Aquaria (EAZA) - Opel Zoo of Germany;
- Save the Rhino Trust (SRT);
- Save the Rhino International (SRI);
- Wilderness Wildlife Trust (WWT);
- Integrated Community-based Ecosystem Management (ICEMA);
- French Fund for Global Environment (FFEM);
- Bosch;
- H. Du Preez Wild; and
- Dunlop Tyres Namibia.

SRT trackers under the guidance of Simson Uri-Khob ensured that the operation was a success and without their participation the operation would never have achieved its goals; Bernd Brell and Rudi Loutit gave valuable support from the air; Jannie Du Preez graciously assisted with equipment and waived pilot fees making the Bell Jet Ranger affordable and by piloting the helicopter made his experience as Game Capture pilot available for free; MET staff agreed not to claim any overtime to keep costs to MET down; support from Jo Tagg and Bennett Kahuure (ICEMA) and his HVAS volunteer Nicholas Duret (FFEM); Veterinarians Pete Morkel and Mark Jago made their expertise available and lastly but most importantly Richard Fryer the designer of the custom built equipment and for keeping all the equipment in tip top shape during the operation.