

With my compliments. J.E. Keep.

The Lammergeyer 18, March 1973

**THE PROBLEMS ASSOCIATED WITH THE CAPTURE
AND TRANSLOCATION OF THE BLACK RHINOCEROS
IN ZULULAND, REPUBLIC OF SOUTH AFRICA**

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INTRODUCTION

Until June 1971 there were only three populations of black rhinoceroses *Diceros bicornis* (L) present in the Republic of South Africa: a very small one in Addo National Park in the Cape Province, a larger one of unknown size in South West Africa and the largest, consisting of about 350 individuals in the Zululand game reserves in Natal.

In order to try and increase the number of breeding populations in the Republic of South Africa talks were held between the National Parks Board and the Natal Parks, Game and Fish Preservation Board, with the result that an operation was planned in 1971 to remove twenty animals (ten females and ten males) from Hluhluwe Game Reserve in Zululand, and attempt to settle them in the Kruger National Park. The rhinos were to be removed from the most densely populated areas of Hluhluwe Game Reserve, where there were more of the species per square kilometre than anywhere else in the world.

Capture and translocation of black rhinos was not a new idea. Many had been caught for zoos by game dealers, without the use of drugs, prior to 1965, but often with heavy losses. King and Carter (1965) described the capture and transportation of five animals in Kenya, using Etorphine hydrochloride in the drug mixtures. Both Ebedes (1966) and Jones (1966) described the use of the drug in the capture of the species. Roth (1967) documented the capture and aquatic-transport of black rhinos during operation Noah at Kariba, and King (1969) and Denney (1969) published the results of their successful operations in Kenya and Tanzania.

At present the Rhodesian Game Department are moving black rhinos from threatened areas to sanctuary in Gona-re-zhou, in the southern part of Rhodesia (Anon. 1971). In addition, the South West African Administration are moving individuals from endangered areas into Etosha Pan Game Reserve (Dr. J.M. Hofmeyr. pers. comm.).

MATERIALS, METHODS AND RESULTS

Some members of the Natal Parks Board staff had had previous experience capturing black rhinos (Keep et. al. 1969) which were living either outside the boundaries of our reserves, or within the reserves but had become an exceptional danger to tourists or officials. These were removed to more suitable areas in Umfolozi Game Reserve, or to Ndumu Game Reserve. These were all caught by darting with immobilizing drugs either on foot or from an open Land Rover.

I shall first stress some of the problems confronting the capture and translocation team, and then describe briefly how they were overcome.

- (a) Finding the desired rhino.
- (b) Darting it, once it has been located.
- (c) Following the darted rhino before recumbency.
- (d) Moving it from the recumbency point to the holding enclosure ("boma").
- (e) Preventing deaths during transit to the holding enclosure.
- (f) The problem of transport from Zululand to the Kruger National Park.
- (g) Preventing excessive dispersal upon arrival at the Kruger National Park.

The capture team met at a convenient rendezvous point within the previously decided capture area. This team consisted of:—

- (i) A helicopter pilot and engineer with a two seater Bell helicopter.
- (ii) A research biologist working on black rhinos, who decided which animals to remove, and fired the darts from the helicopter.
- (iii) A transport officer who was responsible for all vehicles throughout the capture and translocation operation. He controlled an open Land Rover and two special rhino transport lorries with crates.
- (iv) A Veterinarian who was responsible for the drugs used and the health of the rhinos throughout the operation.
- (v) A Bantu labour force with a tractor and trailer.

After the darts had been prepared, the pilot and biologist went up in the helicopter to locate a suitable animal. The nature of the thick vegetation and hilly terrain of Hluhluwe Game Reserve made it almost impossible in most areas to locate the desired rhino, either on foot or in a vehicle. From the helicopter it was found to be possible within a reasonable short space of time.

Once found, the animal was darted from the helicopter as quickly as possible. Each dart for an adult rhino contained 2 mg of Etorphine hydrochloride (Reckitt) and 300 mg of Azaperone (Janssen). A standard Cap-Chur carbondioxide powered gas gun was used, firing a 2cc capacity dart, with a specially reinforced 4,5 cm hollow pointed barbed needle. If the rhino was found in very thick bush or near a river or steep sided "donga" it was driven with the helicopter to a suitable area, before being darted. This would be quite impossible without the aid of a helicopter.

Once the dart was seen to have hit the desired target the helicopter immediately rose to a height from which the moving rhino could be watched with the least possible disturbance. Only if the animal was seen to be moving into an inaccessible area, or towards a river or "donga" was it interfered with, in which case it was driven in the desired direction. This had to be done as quickly as possible, since once the drug started to take effect guiding was found to be impossible.

The problem of communication between the helicopter and ground crews was overcome by the use of "walki-talki" radios. The ground crew, which consisted of the transport officer and veterinarian, was directed to the recumbent rhino from the air. The veterinarian was left to tend the rhino while the transport officer went to collect the Bantu labour force with the tractor and trailer, and the lorry and crate. The Bantu blazed a trail from the nearest vehicle track to the resting rhino, and the lorry was brought in (Fig. 1).

The crate was unloaded by tipping it off the lorry deck by means of a hydraulic device, and positioned in front of the rhino with the door open. A rope loop was placed round the neck and behind the posterior horn, and the other end passed into the crate and through a hole in the front. 250 mg Nalorphine hydrobromide (Burroughs-Wellcome) was injected intravenously, and within one minute the rhino got to its feet and was guided into the crate by pulling on the rope. A blow on the rump speeded the entry. The door was closed, and the crate loaded onto the lorry by means of a cable and winch.

Following immobilization with Etorphine black rhinos have a habit of pushing continuously once in the crate. If this is allowed to continue exhaustion and death will follow. In order to overcome this problem the tranquilliser Azaperone was included in the dart, and in addition five to ten minutes before the antidote was administered a further dose of 200 mg of the same drug was injected intramuscularly. The result was that when in the crate the rhino stood quietly tranquillized and did not push. It was then transported to the holding pen, or as we call it, the "boma". Even when released into the "boma" it remained tranquil and thus avoided injury from rushing around in strange surroundings.

During their stay in the Zululand "bomas" an open crate was attached to the pen, and the rhinos were only fed in the crate. In this way they became used to walking in and out.

After a period of not less than ten days the rhinos were re-crated and transported to the Kruger National Park. Food was withheld for twenty-four hours prior to re-crating, and when the time came for this operation each adult animal was darted with 800 mg Azaperone. Food was then placed in the crate, the hungry rhino walked in and the door closed. After an initial short period of excitement it stood quietly and was transferred to the awaiting long distance transport lorry.

Initially the rhinos were given one further dose of Azaperone during the journey, which took 9½ to 11 hours, but on later trips no tranquillizer was administered en route and the animals behaved excellently.

It had been found at earlier translocation operations that the rhinos, if released directly into their new strange environment, were inclined to disperse long distances to all points of the compass. This is most undesirable when attempting to produce a new breeding nucleus with a limited number of individuals. To try and prevent this widespread dispersal the rhinos were released into bomas at the Kruger National Park, similar to those from which they came in Zululand. They were fed in these bomas and not in crates attached to them, for a period of ten to



Figure 1.
The helicopter hovering above the immobilized black rhinoceros, indicating the animal's position to the truck crew.

twelve days, and then quietly released. Some individuals walked slowly out and immediately commenced browsing nearby before moving out of sight. Others rushed out, but judging by later sightings, did not move far away. So far, the introduction shows every sign of being a success. A detailed description of this operation has been given by Hitchins et. al. (1972).

SUMMARY

The problems involved in the immobilisation of black rhinoceros in dense bush and hilly terrain in Hluhluwe Game Reserve, and their translocation, is described. The animals were located and darted from a helicopter. The immobilising drug used was Etorphine hydrochloride and Azaperone, antagonised by Nalorphine hydrobromide. The rhinos were kept in a boma for at least ten days after capture, then transported to the Kruger National Park (about a ten hour truck journey). On arrival at their destination the rhinos were kept in a boma for ten to twelve days prior to being released into the park.

ACKNOWLEDGEMENT

I wish to thank the Natal Parks, Game and Fish Preservation Board for permission to deliver the paper at this symposium.

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