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*Capture and transport of the  
horn core of a white rhinoceros  
in the Groot Toit*



## CHAPTER 5

# Capture and transport of the white rhinoceros - J.G. du Toit

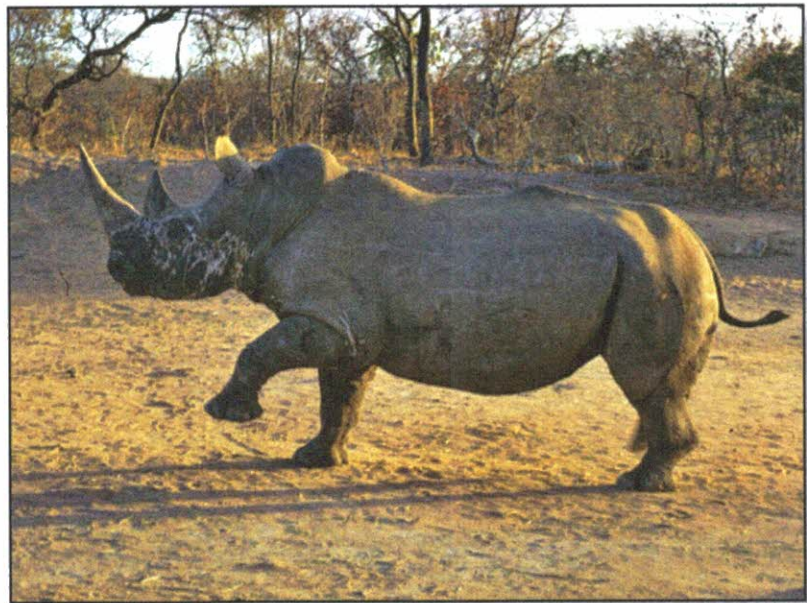
### Introduction

White rhinoceros capturing is a specialized process which should not be tackled by lay persons. The white rhinoceros is expensive and valuable and therefore the use of a helicopter and an experienced wildlife veterinarian is recommended when they are immobilized. After darting, a rhinoceros can trot for five minutes before the drug starts taking effect. The animals can cover a few kilometres during this period. A helicopter assists in finding the rhinoceros as soon as possible, for the antidote to be administered without delay. The helicopter can also be used to herd the animal to a suitable area which is accessible to the capture team on the ground.

### Immobilizing and tranquillizing agents

Rhinoceroses are immobilized with M99 (etorphine hydrochloride) and Stresnil (azaperone). M5050 (diprenorphine) is the antidote used to revive the animal following immobilization. Nalorphine or Naltraxone can be administered when the respiration rate drops to fewer than 6 breaths per minute, or when the rhinoceros lies in an area inaccessible to vehicles. As a rule of thumb, 30 mg azaperone (tranquillizer) is used for every 1 mg M99 (immobilizing agent). **NEVER** use M99 by itself, as the rhinoceros is very sensitive to morphine; the blood pressure may rise to dangerous levels, leading to mortalities (Refer Table 5.1).

Lately, a safer cocktail for the capture of white rhinoceroses has been used (Grobler 2009). Butorphanol is relatively safe with a high therapeutic index and can be completely reversed rapidly with naltrexone or partially reversed by diprenorphine which reverses the  $\mu$  effect but not the  $\kappa$ -opioid receptors. This partial reversal of the undesirable  $\mu$  effect (muscle tremors and respiratory depression), while maintaining the



*Goose stepping in an immobilized white rhinoceros before the drug takes effect*



sedative  $\kappa$  effect, produces some useful and safer anaesthetic protocols in some non-domestic species. The following dosages provided the best results M99  $1.5 \pm 0.5$  micrograms/kg plus Butorphanol  $50 \pm 15$  micrograms/kg plus Midazolam  $25 \pm 5$  micrograms/kg.

## Other medicines

### *Antibiotics*

Long-acting penicillin preparations (approximately 25 ml) can be injected, especially near the dart wound, to prevent abscess formation due to infection of the wound. NEVER administer tetracyclines to rhinoceroses, as this can lead to abscess formation and disturbances of the gastrointestinal tract, which may be fatal.

### *Anti-inflammatory compounds*

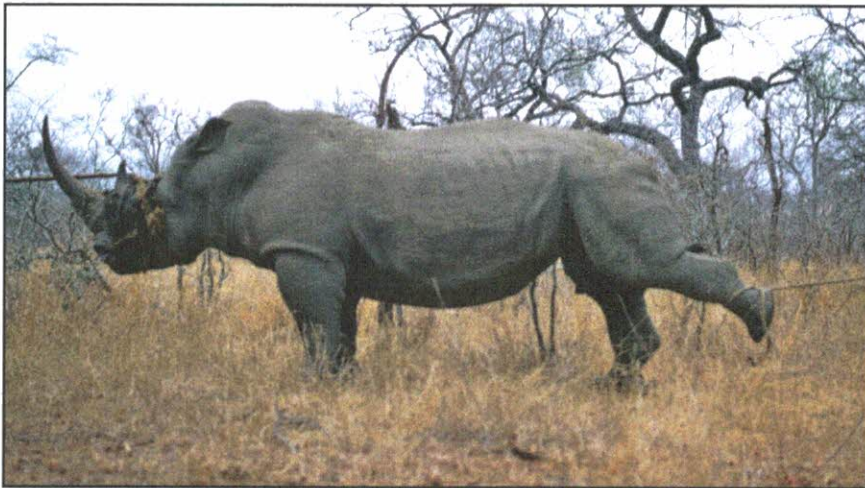
A non-steroidal drug such as Finadyne is an excellent choice. It is important to treat nervous, young animals which may fight the crate. The sinuses are situated relatively deep under the horn and repeated butting with the horn may result in sinusitis. Never administer corticosteroids to adult cows; this could lead to abortion.

### *Other compounds*

- Eye ointment to protect the eye from drying out during immobilization
- Respiratory stimulants to increase the respiration rate
- Emergency drugs
  - Heart-beat stimulant (adrenaline)
  - Local anaesthetic (lignocaine)
  - Stockholm tar and/or Acriflavine when a horn breaks off.

## Precautions

- Do not capture a rhinoceros when the ambient temperature exceeds  $25^{\circ}$  C. Try to prevent rhinoceroses from running long distances on hot days. Plan to capture the animals early in the morning, when it is cool.
- Take sufficient water (minimum 40  $\ell$ ) to cool the rhinoceros; spray by means of a knapsack pump.



*Leading a rhinoceros to the crate for loading*

## Capture and transport of the white rhinoceros

Get the animal to its feet as quickly as possible. Temporary paralysis of the nerves can occur ('pins & needles'). Dog-sitting is especially dangerous; roll the animal onto its side if the hind limbs are paralysed.

- Cattle prodders, ropes, blindfolds and ear stoppers (rags) are necessary to control the animal.
- Dart wounds can be treated successfully with mastitis preparations.
- Do not inject large volumes of irritating substances into the neck of a rhinoceros when it must be held in a boma. The pain when the animal moves its neck or lifts its head will discourage feeding.
- Pour-on compounds (0,5% solution, rather than the standard 1%) can be used for tick control, but should preferably be applied once the animal is feeding well in the boma. NEVER use Triatix on a rhinoceros, as it may lead to ileus of the small intestine.
- Avoid using Hyoscine if the animal is to be released directly into hilly country, as the drug may cause vision disturbances for up to 30 days after administration.
- Restrict spectators at the capture process to the bare minimum.
- Administer long-acting tranquillizers such as Trilafon, Clopixol-Acuphase or Perphenazine enanthate if animals are to be released directly into the veld.
- Do not immobilize animals which are in poor condition during the late winter. The neck muscles (nuchal hump) and hip or pelvic muscles are good indicators of the condition of the animal. The ribs of a rhinoceros are always discernible: it is therefore not a good method of assessing condition under field conditions.

### Physiological values

Rectal temperature varies from 34,5° C to 37,5° C.

Respiration rate varies from 6–12 breaths/minute.

Pulse is 30–40 beats/minute.

Defecation rate: 5–6 times per day.





## Transport

- A rhinoceros should always be transported singly, even a cow and her calf.
- Use long-acting tranquillizers, irrespective of the distance covered (**Refer Table 5.2**).
- Use mass-carriers, with single crates placed next to each other. Four to six animals can be transported in this way. It works best with young animals. Adults are broad in the beam, which makes it difficult to get them to move through the adjoining compartments.
- The rhinoceroses are loaded facing backwards; when the driver has to brake suddenly, the horns won't be bumped off and the shock will be absorbed by the hindquarters.
- Crates with vertical bars approximately 60 cm from the front will help to prevent the horns of big bulls from breaking off.
- Use the 24-hour information service of the SA Weather Bureau [www.weathersa.co.za](http://www.weathersa.co.za) to avoid moving animals during cold fronts.
- Avoid transporting rhinoceroses when the minimum temperature drops below 5° C.
- Spray animals with water every four hours in hot weather. This can coincide with stops, when inspection can be carried out.
- Arrange for a light vehicle to accompany the truck, to assist in case of a breakdown.
- The truck drivers must be experienced. The truck should be driven in such a way that if a glass of water were placed in the crate, it would not be overturned.
- There should be radio and telephone communication between the truck and the capture unit. The driver should also have the buyer's telephone number.
- Pole syringes are required for administration of short-acting tranquillizers (Azaperone) to animals becoming restless.
- Make sure that the truck is equipped with a cattle prodder, to get animals lying in a bad position to stand up; a torch (flashlight) should also be available.
- Standardize wheel sizes of the truck and the trailer (three spare tyres are essential for long distances).
- Closed-circuit TV can be used to observe the animals during transport. Please refer to the crate dimensions provided in **Table 5.3**.

## Boma management

The reasons for taming white rhinoceroses in bomas are the following:

- To prepare animals for auction.
- To prepare animals for export to zoos and safari parks.
- Animals having to be transported over distances exceeding 1000 km.
- Animals originating from large reserves, destined for game ranches which do not have electric fences, need to be acclimatized in a boma.

## Problems

- Keep the boma open after release and maintain the supply of water and feed; animals often return to the boma to feed and drink.
- Young animals adapt more readily than adults.
- Adults tend to go on 'hunger strikes' (1 in 5 animals refuse to take feed).
- Rhinoceroses will try breaking out for the first 7 days – 'bomas have to be strong enough to break in the animals'.

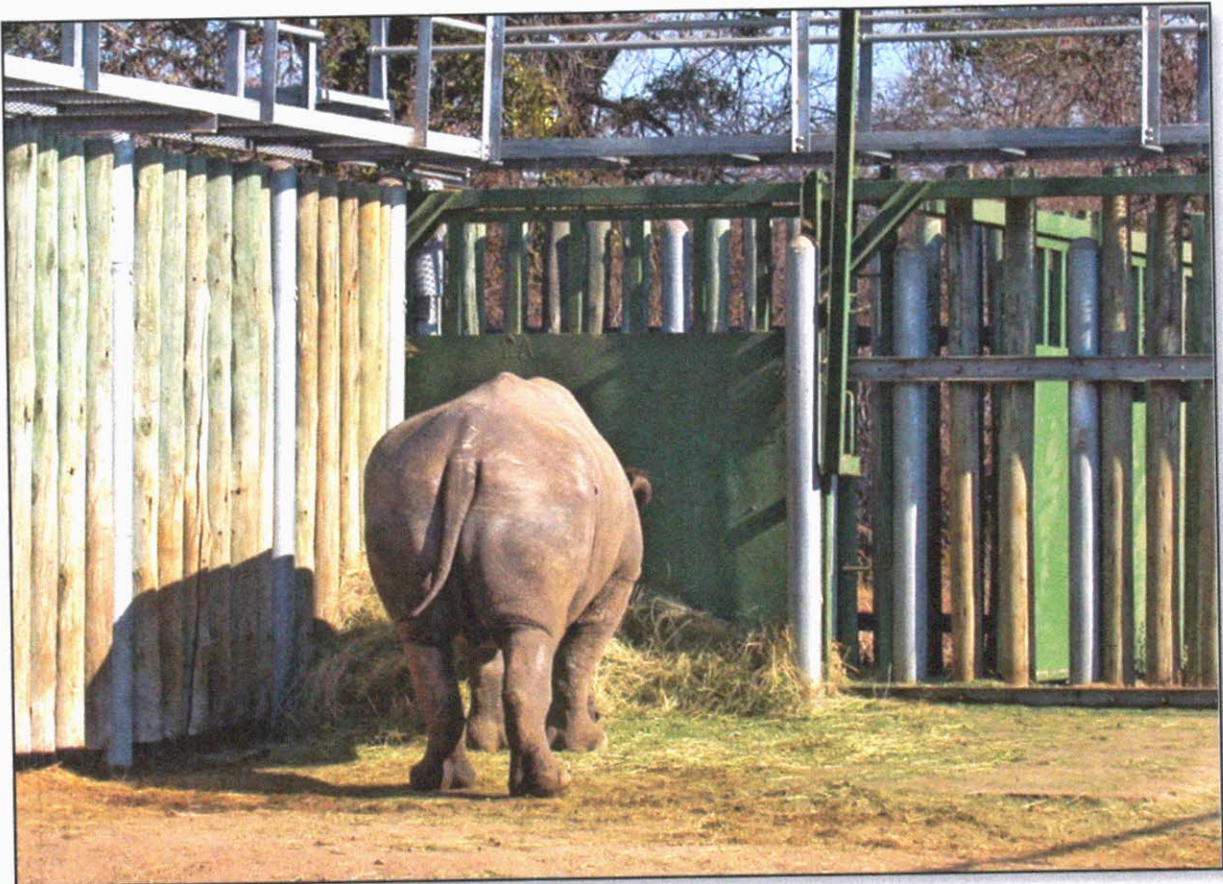


## Capture and transport of the white rhinoceros

- Animals may see people moving about outside the boma and charge, sometimes losing a horn by butting against the pole fence or hooking the horn between the poles.
- Only the boma staff should be allowed in the vicinity until the animals are eating well.
- Disturbances of the gastro-intestinal tract may occur, such as diarrhoea, colic and constipation.
- If there is no mud wallow in the boma, the skin loses condition.

### Precautions

- Meet the animal's social requirements. White rhinoceroses are gregarious; animals should therefore have 'company' in the bomas by seeing others through the pole fences. Groups of individuals knowing each other should be placed in the same boma, to maintain social bonds. Some cows and larger calves may fight.
- Stimulate the animals to defaecate as soon as possible. This can be done by placing the dung of strange rhinoceros in the boma. The usual pattern for a rhinoceros is to defaecate on the first two days, and then stop for a few days until they have started eating again.
- Maintain good hygiene by removing the dung frequently. A layer of sand in the boma will absorb urine.
- Create a mud wallow in one corner of the boma, if the boma is large enough. Mud seals small wounds and prevents maggot infestation.
- Provide sufficient shade in the form of a roofed-over area.
- Provide sufficient clean drinking water daily. An adult animal requires up to 50 l of water per day.





## Feeding

- Using long-acting tranquillizers on rhinoceroses in bomas may suppress the animals' appetite.
- Provide green veld-grasses such as *Panicum maximum* (Guinea grass; witbuffelsgras). Crushed pods of *Acacia tortilis* (umbrella thorn; haak-en-steek) stimulate animals to start eating sooner, probably due to the scent and taste.
- Feed pellets with high doses of anticoccidials (*Salinomycin*) should be avoided as this substance is highly toxic to a rhinoceros.
- Game cubes (antelope cubes) which include cotton products will contain gossypol, which is potentially toxic to single-stomach animals such as rhinoceros.
- Horse cubes are the ideal concentrate for boma feeding. A total of 2,5 kg can be fed twice a day to adult rhinoceros. Animals refusing to feed, can be stimulated by scorching dry grass and dousing it with water. A rhinoceros like grazing on newly-burnt veld, and this method will sometimes stimulate them to start feeding.
- Rhinoceroses feed actively at night; sufficient fresh feed should be provided in the late afternoon.
- Young rhinoceroses are coprophagous – they eat faeces to obtain vitamins produced in the large intestine. A vitamin supplement can be added to the drinking water.
- Good quality hay is essential. Teff and lucerne can be mixed; an adult rhinoceros requires one to two bales of roughage per day.
- Hay racks or troughs and water troughs should not be close together, to prevent spilling of hay into the water.
- Mouldy hay can cause colic and should be avoided.
- Constipated animals can be stimulated to defaecate by adding magnesium sulphate (Epsom salts) to the drinking water. Dosages are: 500 g/50 ℓ for an adult bull; 400 g/50 ℓ for an adult cow; 200 g/50 ℓ for sub-adult animals and 50–100 g/50 ℓ for young animals. Animals will sometimes refuse water with added electrolytes, due to the taste and smell. Constipation is usually caused by poor quality hay.
- Do not deworm a rhinoceros, because some of the worms may have a symbiotic relationship with the host. If bots (parasitic insect larvae) are a problem, the animals should be treated.

**Table 5.1: Recommended total drug dosages (in mg) for immobilizing white rhinoceroses**

TYPE ANIMAL	TRANQUILIZER	CAPTURE DRUG	ANTIDOTE
	<b>Azaparone</b>	<b>M-99</b>	<b>M5050</b>
Yearling	0.5–1	15–30	1–3
Sub-adult	30–90	1–3	2–8
Adult cow	90–120	3–4	6–10
Adult bull	120–150	4–5	8–10

Table 5.2: Recommended total dosages (in mg) of tranquilizers for transporting white rhinoceroses

TYPE ANIMAL	SHORT-ACTING	LONG-ACTING	
	Azaparone	Clopixol-Acuphase	Trilafon
Yearling	50-100	-	-
Sub-adult	150	200	200
Adult cow	200	150-300	250
Adult bull	250	300-350	300



Source: L. van Schalkwyk

Table 5.3: Recommended interior measurements of single crates for transporting white rhinoceroses

TYPE ANIMAL	HEIGHT (m)	LENGTH (m)	WIDTH (m)
Yearling	1.4	2.6	0.9
Sub-adult	1.6	3	1.1
Adult cow	1.8	3.3	1.3
Adult bull	2.2	4.0	1.5

## REFERENCES

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