

Problem 6

If the rhino is not standing properly when it is pulled, it may be dragged into the crate with its back legs stretched out behind it. This is a very difficult situation to correct. To rectify this situation, close the door behind the animal and lift up the front of the crate using the truck. The animal will slide back and, with the back legs braced against the back door of the crate, it may be able to stand up again.

Problem 7

It occasionally happens that the rhino misses the entrance to the crate after being roused, and goes past it. If this happens, the team members should pull on the foot rope or tie it to the follow-up vehicle or a tree to brake the animal. The animal is then prodded on the nose which causes it to reverse, whereupon it can be pulled into the crate.

An alternative method is to pull the crate forward while the animal is being braked by the foot rope. The animal can then be guided into the crate. This method is, however, more time consuming.

Problem 8

If the crate is loaded at too steep an angle, the animal may slip forwards with its hind legs under its body. The animal ends up in a dog-sitting position at the front of the crate – a situation from which it cannot recover on its own. If this does happen, once the crate is loaded, the truck driver must accelerate, build up speed, and then brake suddenly. The animal usually slides backwards, and the problem is thereby alleviated.

Do not

- Never take chances with rhinos: they are unpredictable.
- Never dart a rhino less than one-and-a-half hours before sunset.
- Never walk in front of an immobilized rhino, and stay away from the front horn at all times.

Acknowledgements

The author acknowledges the assistance of Apie Strauss in the compilation of this and other sections on rhino included in this book. Cathy Adam is thanked for typing the manuscript.

Bibliography

- Flamand, J.R.B., Rochat, K. & Keep, M.E. 1984. An instruction guide to the most commonly and successfully used methods in rhino capture, handling, transport and release. In: *The Wilderness Guardian*, T. Corfield (Ed). Nairobi: Space Publishing, Nairobi.
- Harthorn, A.M. 1962. Capture of white (square-lipped) rhinoceros, *Ceratotherium simum simum* (Burchell), with the use of the drug immobilization technique. *Can. J. Comp. Med.* 26:203–208.
- Harthorn, A.M. 1962. The capture and relocation of the white (square-lipped) rhinoceros, *Ceratotherium simum simum*. *Lammergeyer* 2:1–9.
- Harthorn, A.M. 1973. The drug immobilization of large wild herbivores other than the antelopes. In: E. Young (ed.), *The Capture and Care of Wild Animals*. pp 51–61. Human & Rousseau, Cape Town.

Keep, M.E. 1971. Etorphine hydrochloride antagonists used in the capture of the white rhinoceros *Ceratotherium simum simum*. *Lammergeyer* 13:60–68.

Keep, M.E. 1972. The use of "Rompun" (VA 1470) Bayer on the white rhinoceros. *Lammergeyer* 17:31–35.

Keep, M.E. 1973. The use of etorphine hydrochloride (M-99-Reckitt), fentanyl (Janssen) and liosocine hydrobromide combination for field capture of white rhinoceros. *Lammergeyer* 19:28–30.

Heard, D.J., Olsen, J.H. & Stover, J.S. 1992. Cardiopulmonary changes associated with chemical immobilization and recumbency in a white rhinoceros (*Ceratotherium simum*). *J. Zoo Wildl. Med.* 23:197–200.

Rochat, K. & Steele, N.A. 1968. Operation Rhodesian Rhino. *Lammergeyer* 8:15–24.

Personal communications: Dr R.E.J. Burroughs, Du Toit Game Services, Box 29421, Sunnyside, 0132 RSA; Dr M.D. Kock, Department of National Parks and Wildlife Management, P.O. Box 8365, Causeway, Harare, Zimbabwe; B. Lance, Wildlife Pharmaceuticals Inc., 1401 Duff Drive, Sweet 600, Fort Collins, CO80524, Colorado, USA; Dr J.P. Raath, Kruger National Park, P. Bag X402, Skukuza, 1350 RSA.

5052

Transportation of the white rhinoceros *Ceratotherium simum*

P.S. Rogers

Precautions

- Ensure that adequately robust crates are used, and that facilities at the receiving end are suitable for accommodating rhinos.
- Ensure that rhinos do not lie down in the crate for at least the first six hours.

How to transport the white rhinoceros

All rhinos are crated and transported individually – even cows and calves.

Crate design

Two types of crates are used, one for the capture operation and one for transportation from the boma to the final destination. The field recovery crate is described in *Chemical Capture of the White Rhinoceros*, this Section.

Export or delivery crate

This crate is attached to the end of the front pen at the boma for crate training, and is the type of crate that is used for single deliveries and for export.

The frame consists of 75 mm channel iron. The roof consists of 43 mm pine planking and extends for approximately three-quarters of the length of the crate from the front (i.e., only the animal's hindquarters are exposed). The sides consist of pine planking. The inside of the sides and roof are clad with steel as in the case of the capture crate (see *Chemical Capture of the White Rhinoceros*, this Section). The floor consists of 43 mm pine planking. A ventilation gap is left between the floor and the sides of the crate.

Doors

- Doors are fitted at the front and back of the crate. The doors consists of upper and lower parts made of 50 x 50 mm angle iron and 43 mm pine planking. The lower door is 480 mm high, while the height of the upper door depends on the size of the crate. Both parts can be opened, closed, and secured independently. The doors are mounted on bolts, not hinges, so that they can be removed altogether in hot weather. This is particularly important during sea travel.
- The bottom door is usually kept closed to stop feed and dung being pushed out of the crate, and to prevent the animal's back legs from sliding between the bars and out of the crate (a potentially life-threatening situation). This door is opened to water the animal and to remove dung and old feed.
- Both sections of the front door must be clad with sheet metal (see above). It is not necessary to clad the back door.
- Doors must always fit easily. Double lock-nuts are used to secure the doors during transit.

Bars

- There are four holes in the floor and roof of the crate just inside the front door. Sixty mm pipes are secured in these holes to form bars at the front of the crate. These retain the animal in the crate when the doors are open. The bottom third of the middle two poles is bent outwards such that the gap at the level of the floor is sufficient to allow a plastic basin containing water to be inserted into the crate.
- Similar bars, without the bent lower sections, are fitted at the back of the crate.

Skids (100 x 50 mm channel iron) and steel eyes are fitted as in the case of the capture crate. The skids also help to keep the wooden floor off the ground, thus preventing rotting of the floor.

Size

The size of the crate is important, and must be individually determined for each animal. The crate must be large enough to allow the animal to lie down comfortably, but must not be so large that the animal can turn around, or that the animal can be thrown around in the crate during transit. The dimensions of the four standard sized crates used by the Natal Parks Board are given in Table 1.

Table 1. The inside dimensions of crates used by the Natal Parks Board for the transportation and shipment of the black and white rhinoceros.

Crate	Animal	Height (m)	Length (m)	Width (m)
Size 1 Crate	Juvenile	1,8	3,6	1,5
Size 2 Crate	Sub-adult	1,8	3,3	1,3
Size 3 Crate	Adult	1,6	3,0	1,1
Size 4 Crate	Large bull	1,4	2,6	0,9

Mass transport crate

A large steel crate consisting of six compartments mounted on a low-bed truck is used for the mass transportation of rhinos. A middle wall and sliding doors are used to divide the interior of the crate into compartments of 1,2 x 3,6 m each. The crate is 2 m high. The entire crate can be lifted off the low-bed truck for cleaning and maintenance.

Post-capture transportation

The route from the capture site to the destination must be negotiated with great care to avoid injuries, smothering, and slipping. Remember, the animal is still very groggy and unsteady on its feet.

Transportation to final destination

There are two approaches to the transportation of rhino.

- They can either be captured, loaded and transported direct to their destination; or
- They can first undergo an adaptation period of at least six weeks in bomas before transportation to their final destination.

If the journey is going to be longer than 8–10 hours, it is preferable to first boma-train the animal.

There are several advantages to the boma training period.

- It is always advisable to keep the rhino in a boma at the receiving end for a few days before release. The idea behind this is to let the animal settle down and adapt to its new surroundings. It is therefore preferable to have a boma-trained animal that one knows is eating and will eat in the boma at the receiving end. Rhinos released directly into the veld (especially if they are not boma trained) usually scatter, breaking fences and ending up on neighbouring properties.
- The transportation is not that stressful to the animal, as it is used to being confined. The animal is, therefore, calmer when off-loaded.
- Animals that are caught and delivered directly, especially if the trip is longer than eight hours, are very likely to break their horns off in the crate.

Field-caught animals must be monitored closely for the duration of the trip and may need to be tranquilized. Boma trained animals very seldom require additional tranquilization and only need to be checked on approximately every three hours *en route*.

Direct method

In the early days, field-caught white rhinos were transported successfully to destinations up to 2000 km away (46 hours) using a combination of various drugs. Azaperone is now used if necessary; however, we seldom transport field-caught rhinos to destinations more than 12 hours away. Recommended doses are as follows:

Adult	150–200 mg
Sub-adult	100 mg
Juvenile	50 mg

Note: if the animal is still groggy but fighting the crate, start off with lower doses. Azaperone has a wide safety margin and has no deleterious effect on body temperature.

Boma method

The loading and transportation of boma-trained rhinos will be described in detail.

After the animal has spent an adaptation period of at least six weeks in the bomas it is ready to be transported. The animal is closed into the front section of the front pen and it is darted with a minute amount of etorphine to facilitate loading and to keep it calm in the crate. The dosages are as follows:

Adult	0.5 mg
Sub-adult	0.25 mg
Juvenile	0.125 mg

Before darting, the water trough must be emptied as the animal may trip on the edge of the trough and fall with its head in the water.

Once the animal has been darted, everybody moves away and all machinery and noise is stopped. It usually takes about 10–15 minutes for the animal to become visibly affected. An animal attendant then waves a white cloth or feed bag in a slow, rhythmic fashion in front of the entrance to the crate. If affected enough, the animal is drawn towards it. This person then moves around to the other end of the crate and waves the cloth or bag in the same fashion: the animal usually walks into the crate. The crate door at the front end is taken off, but the steel poles are left in place to retain the animal in the crate. This whole process, from the time of darting, usually takes 20–30 minutes. The animal should be allowed to settle down for a few minutes before sliding poles horizontally into the boma gate behind it: an overhasty approach could result in the animal taking fright and reversing out of the crate. Once these horizontal poles are in place, the vertical poles are placed through the holes in the roof and the floor at the rear of the crate.

If the animal goes down, or seems likely to go down, nalorphine may be administered, preferably intravenously:

Adult	50 mg
Sub-adult	25 mg
Juvenile	10 mg

The crate is loaded onto the truck with the animal facing backwards, the doors are put on, and the crate is secured in position. The journey should only commence once the person doing the loading is completely happy with the animal's condition.

Enough teff to serve as feed and bedding must always be put in with the animal.

The animal must be kept on its feet for at least the first six hours (i.e., until the drug has completely worn off), even if the cattle-prodder must be used for this purpose. If the animal lies down while still in a drugged state it may develop neuromuscular problems from lying too long on a specific hind leg. It is important to check the animal half-hourly for the first two hours, then hourly for the next four hours, and then every three hours once the drug wears off. The animals tend to stand and eat peacefully right up to the destination. They usually lie down periodically: this is in order, provided the drug has worn off.

Occasionally, an individual animal may need to be tranquilized *en route*. Azaperone is recommended at the doses given above. If the animal is still affected by the etorphine but is fighting in the crate, start off with a lower dose: one does not want the animal to collapse or smother itself.

An important point to bear in mind while transporting rhino (both black and white) is the outside temperature. The Natal Parks Board mass transporter has six crates – each equipped with a roof hatch that can be closed when it gets too cold or starts raining. We use a temperature of 20°C (this may sound warm: remember the wind-chill factor) as a guideline in deciding when to close the hatches. If individual animals are transported, each crate is accompanied by tarpaulins with which to cover the crate should this become necessary. An important point to remember here is that there must still be sufficient ventilation once the crate has been closed.

Off-loading

The receiving pens should be prepared and water and food supplied before off-loading so that the animal may be left undisturbed once off-loaded.

Once the crate is lined up with the gate of the receiving boma, the door is simply opened and the animal is allowed to walk out in its own time. If it refuses to move, a cloth may be waved slowly at the entrance to the boma to entice the animal out of its crate. If this fails, the animal's hindquarters can be stroked with the extension handle of the prodder. Only if this fails should one consider using the prodder itself, and then only sparingly.

It is important to keep unnecessary spectators, noise and movement to an absolute minimum during the off-loading process. Spectators should be kept as far from the pens as possible while the animals are being off-loaded. They should not be allowed to approach the pens even after all the animals have been off-loaded.

Occasionally a rhino will not get out of the crate, even resisting a cattle prodder. It is best to just leave the animal and go away for an hour or so: the animal will usually be out by the time you return. Be sure to leave somebody reliable keeping watch from a distance. If this does not work either, one can tranquilize the animal using azaperone (see above). The animal is then left to come out on its own.

Another point to remember at off-loading is to separate a cow and calf into different pens, even if only for the first few minutes. An agitated cow may attack her calf.

Release

If the animals have been boma trained before transportation to their destination it is only necessary to keep them in the receiving bomas for a few days, i.e., until they settle down. It is not necessary to reduce their daily lucerne quota before release.

It is advisable to release only one animal at a time (except a cow/calf combination) to avoid fighting. The best method is to open the gate at dawn and allow the animal to leave on its own. Disturbance must be kept to a minimum. The next pen is only opened 24 hours later.

It may be necessary to provide a water source just outside the bomas if it is thought that the animals may take some time to find water in their new environment.