

## Transportation of the rhinoceros by air or by sea

P.S. Rogers

1 General principles .....	534
2 Crate training .....	535
3 Routine on board .....	536
4 Drugs and veterinary equipment .....	537
5 Common ailments affecting crated rhinos during transportation .....	538
6 Emergency tranquilization .....	539
7 Emergency destruction .....	539
8 Air vs sea transportation .....	540

In the past, almost all rhinos were transported overseas by ship. Nowadays there is a tendency to send rhinos by air if possible. It is more humane to use air transportation – the animal gets to its destination within two days as opposed to anything up to a month later. This circumvents potential problems associated with confinement, such as stress, constipation, diarrhoea, pneumonia, boredom, wounds, etc. Cost, however, remains an important consideration – it is much more expensive to transport animals by air than by sea. From a preparation point of view it does not matter which method is used to transport rhinos – either way, they must undergo a boma training period of at least six weeks before preparing them for departure. The final crate training period takes a further three weeks.

### 1 General principles

- Take extra feed for at least ten days more than the expected duration of the trip, in case the ship is delayed.
- Make sure that the feed is stored in a sheltered place (e.g., a container) which is placed as close as possible to the animal(s).
- Position the crate so that it is protected from wind, rain, and sea spray (e.g., behind the superstructure of the ship).
- Ensure that there is a good water point nearby and enough hosepipe to reach each crate. A stopcock should be fitted half a metre from the end of the hose for ease of use.
- There should be an electrical supply point close to hand, and lights should be rigged up between the crates as soon as they are in position.
- Ensure that the crate doors are not obstructed by other cargo or by securing cables.
- Ensure that the securing cables can be removed in an emergency if necessary.
- Ensure that sufficient tarpaulins are available to cover the crates in adverse weather.
- Personal equipment should include a pair of canvas lined rubber gloves, a pair of gum boots, two pairs of overalls, and a personal first aid box.
- A complete veterinary kit should be available (see below).
- A scraper is required for cleaning out the crates. The handle of the scraper is made of 12

mm reinforcing rod, with a metal plate serving as the scraper. The length of the handle and the width of the scraping plate should be adjusted according to the space available for cleaning. The scraper should in no way be a danger to the animal's feet when cleaning, or to the person using it. The back of the scraper handle should be bent in the form of an L – this is used to help remove unused hay from between the animal and the sides of the crate.

- Ensure that the crates are angled slightly upwards towards the front to let urine run out of the back of the crate. An elevation of 50–75 mm is adequate.
- If there is more than one crate, try to place them facing each other: the animals tend to be calmer if they can see one another.
- The bottom sections of the front and rear doors are only opened when necessary.
- Take spare hay or bedding: in rough seas this can be packed around the animal's hindquarters.
- When the crates are being loaded onto or off the ship, the cable should be placed under the floor of the crate, and not through the fittings welded to the frame.
- All fodder should be obtained from one source, since changing feed may upset the digestive system of the animals. In some cases they may even refuse to eat at all. The food used on board ship should be from the same source as that used in the pens, and should be of good quality.

### 2 Crate training

The final crate training (preparation) period for sea and air transportation is divided into three phases, each approximately one week long.

#### Week 1

Getting the animal used to drinking out of a plastic water trough. This is quite easily done: the plastic trough (a baby bath is ideal) is put into the empty drinking trough in the pen and filled with water. The animal quickly learns to drink out of it. The bath is then gradually moved closer and closer to the export crate that is attached to the front pen. Eventually the animal's drinking water is in the crate (remember, it is already eating in the crate). This phase can take up to seven days.

#### Week 2

Teaching the animal to drink when water is presented to it. From the second week onwards, water is presented only twice daily. This is so that the animal becomes accustomed to the routine that will be followed during transportation.

#### Week 3

Confinement in the crate. At the beginning of the third week the animal is loaded into the crate in the normal fashion using etorphine hydrochloride (see *Transportation of the White Rhinoceros*, and *Transportation of the Black Rhinoceros*, this Section). Do not try to close the rhino in its crate without using etorphine! The crate is then towed away from the pen and positioned in a shady area. The front of the crate should be elevated by 50–75 mm to ensure that the urine runs out of the back of the crate and does not contaminate the feed. When the effects of the etorphine wear off the animal may become a little agitated at being

confined, and may try to get out of the crate. This period is transient and, after a day or two, the animal usually resigns itself to being confined. The rhino may initially knock its water trough around a bit when it is given water. This is only likely to persist for a day or two after the animal has been closed in its crate. It may occasionally be necessary to tranquilize the animal during this phase: azaperone is the drug of choice. The process is facilitated by proper boma training (i.e., adaptation) prior to confining the rhino to its crate.

It is essential for the attendant who will be accompanying the animal to spend at least these last seven days before departure with the animal. The attendant must clear the crate of dung and old feed, as well as feed and water the animal, twice a day. It is here that the attendant gets to know the difference between loose and normal dung, how much the animal eats, and how much it drinks. He also becomes familiar with the normal variation in colour of rhino urine. In between the feeding periods the attendant should spend as much time as possible with the animal, either talking to it or just sitting nearby reading. The idea is for the animal to get used to its handler as quickly as possible.

The top half of the front door of the crate must always be left open, except at night and during adverse weather. This enables the animal to see people passing by outside and to get used to its attendant. In hot weather the top halves of both the front and the back door should be left open to ensure adequate ventilation. The bottom part of the front door is only opened to water the animal or to give or remove feed. The bottom half of the back door is only opened to remove dung and old feed, or to treat wounds.

During this last period of getting used to confinement the animal often picks up superficial scratches, and maybe even pressure sores on its hocks. Superficial wounds at the back of the animal can be treated easily using an antibiotic spray (e.g., Airbiotic GV<sup>®</sup>). Weeping wounds can be packed with a wound powder (e.g., Centaur Wound Powder<sup>®</sup>). Wounds on the face and head can be treated in the same way if the animal will allow it. Alternatively, use 1:500 acriflavine solution in a pressurized garden spray. Treat more serious wounds as described in *Care of the White Rhinoceros in Captivity* (this Section).

### 3 Routine on board

It is important to settle into a routine with the animals immediately. This should be the same as the routine followed during the training period.

- Open the top section of the front door before breakfast each morning, providing the weather is suitable.
- Briefly check on all the animals.
- Scrape and clean all the crates.
- Distribute the morning feed. The morning feed should consist of half the daily ration, and the afternoon feed the other half.
- After breakfast, check all wounds and treat when necessary.
- Observe all the animals, check them thoroughly, and note their feed intake.
- At 10h00 water the animals and clean and scrape the crates. Repeat this at 15h00.
- Give the final feed at approximately 16h00.
- Close up the crates at sunset. Ensure that there are no flapping tarpaulins (if these are being used). Do a final check and switch off all lights before retiring.

- A midnight check of all animals is also advisable. If it is noticed that a rhino has finished all its feed, make a note to increase the amount given the next afternoon. Do not give additional feed to the animal immediately.
- On good days ensure that the rhinos get as much light into their crates as possible. This is done by uncovering the top opening at the back of the crate and opening the top sections of the back as well as the front doors. Monitor the animal regularly to make sure that it does not get too hot.
- If shade and additional ventilation are required for the animal, remove the top of the front door and bolt the bottom hinges of the door against the top hinges of the crate. A tarpaulin can then be suspended between the top of this door and the back of the crate. Once in this position, the tarpaulin will catch any breeze available.

### 4 Drugs and veterinary equipment

The following is a suggested list of drugs and equipment that should accompany rhinos during a sea voyage. The quantities involved obviously depend on how many animals are travelling.

- Disposable syringes (20, 10, 3, 1 ml). Disposable needles (18g x 38 mm, 20g x 38 mm, 20g x 25 mm, 21g x 25 mm). (The latter two are for IV use.)
- Powdered Kaolin 500 g packages. Enterosol<sup>®</sup> powder. Magnesium sulphate 500 g packages.
- Wound aerosol (e.g., Airbiotic GV<sup>®</sup>). Ophthalmic preparations (e.g., Vidine<sup>®</sup>, Ophchlor Vet<sup>®</sup>, Orbenin OPH<sup>®</sup>).
- Long-acting penicillin (e.g., Compropen<sup>®</sup>). Broad-spectrum antibiotic (e.g., Potencil<sup>®</sup>). Cortisone (e.g., Kortico<sup>®</sup>).
- Vitamin B complex injectable. Vitamin B12 injectable. Vitamin B complex syrup. Anabolic steroid (e.g., Anabolin<sup>®</sup>).
- Acriflavine glycerine 1:1000. Acriflavine solution 1:500. Hydrogen peroxide 20%. Provodine<sup>®</sup> antiseptic solution. Centaur Wound Powder<sup>®</sup>.
- Buscopan Compositum<sup>®</sup> (spasmodic – for diarrhoea). Finadyne<sup>®</sup> (for colic). Phosamine Stimulans<sup>®</sup>.
- Azaperone 200 mg/ml. Xylazine powder, diluent, yohimbine hydrochloride. Suxamethonium (Scoline<sup>®</sup> powder, 1 g vial. Doxapram (e.g., Dopram<sup>®</sup>). Etorphine hydrochloride, diprenorphine, nalorphine, naloxone, touniquet (only if attendant is qualified to use etorphine). Sterile water for injection.
- Cattle prod. Scalpel handle and blades. Cotton wool.
- Disinfectant soap (e.g. Sumanol<sup>®</sup>).

Drugs should be injected into the thick muscles of the hind legs or buttocks. Thrust the needle hard into the muscle. The animal is bound to jump around. Wait until it has settled down, attach the syringe firmly but quickly, aspirate to make sure that you are not injecting into a vein, and then inject the drug quickly, steadily, and quietly.

## 5 Common ailments affecting crated rhinos during transportation

### Superficial wounds

This is by far the most common ailment that requires attention. Most of these wounds are so-called 'pressure sores' which usually occur on the hocks. The vertical pipes at the rear of the crate may aggravate these sores, and these may be removed if necessary. The placing of bedding on the floor of the crate does not help since it soon gets pushed into heaps and becomes wet and unhygienic. The treatment has been discussed above and in *Care of the White Rhinoceros in Captivity* (this Section). Be careful not to wet the floor of the crate any more than is necessary in the process of treating a wound. Wound powder can be applied to weeping wounds and also to broken horn wounds. It can simply be thrown over the wound or directly applied by hand if the animal is tame enough. If wounds on the legs become severe and multiple, it is advisable to keep the crate as clean as possible at all times to minimize contact between wounds and dung.

### Constipation

See *Care of the White Rhinoceros in Captivity* (this Section) for symptoms. This condition may occur if the animals' diet is changed. It may happen, even under normal conditions, that an animal might not defaecate for a day or two (stress of travel, strange environment, etc.). Increase the lucerne and cube component in the diet – this should loosen the stools. If constipation persists, treatment with Epsom salts is indicated (see *Care of the White Rhinoceros in Captivity*, this Section).

### Diarrhoea, pneumonia, colic, eye infections, foot infections

See *Care of the White Rhinoceros in Captivity*, this Section. A point to note here is that on the equator the drinking water heats up and will loosen many of the animals' stomachs. It is nothing to worry about – just cut back on the lucerne and cubes in the feed. This phenomenon usually lasts about four days. Before treating an animal for diarrhoea try to regulate its condition by eliminating lucerne and cubes. If this does not help it will be necessary to treat it (see *Care of the White Rhinoceros in Captivity*, this Section).

### Abscesses

These occur very rarely and are usually the result of a penetrating wound or of using a dirty needle to inject an animal. The abscess starts off as a small lump that gets progressively larger. It is usually hot and painful. The periphery remains hard but the middle gets soft and fluctuates on palpation (i.e., comes to a head). It is at this stage that it should be lanced with a scalpel, preferably at the lowest point, to facilitate drainage. It is advisable to make a large incision, possibly even two in the form of an X, to prevent the wound from closing up with reformation of the abscess. Once all the pus has been squeezed out, flush the cavity well with hydrogen peroxide, water, and iodine, and then instil acriflavine glycerine into the wound. Treat it as a normal wound from then on (see *Care of the White Rhinoceros in Captivity*, this Section).

It is important to distinguish between an abscess and a haematoma (blood blister). The latter is caused by a severe blow leading to rupture of a blood vessel and subsequent

bleeding under the skin. A haematoma should not be opened as it is sterile and the blood clot will eventually be resorbed if it does not develop into an abscess. A sterile hypodermic needle (at least 18g) should be pushed into the swelling. It is important that the area to be punctured be thoroughly swabbed down with iodine first. If puss comes out it, it is obviously an abscess, while if straw coloured serum comes out it is a haematoma. If it is an abscess it should be lanced and treated, while if it is a haematoma it should be left as it is. The animal should be injected with a long-acting antibiotic to prevent abscess formation resulting from puncturing of the haematoma.

### Poor condition

This is encountered when an animal has been sick or does not adapt to the crate. The animal can be injected with vitamin B Co/B<sub>12</sub>, Phosamine<sup>®</sup>, and anabolic steroids (e.g., Anabolin<sup>®</sup>). Vitamin B complex syrup should be put into the water.

### Boredom

Rhinos tend to become very bored when confined to a crate for a long period, with the result that they continually change their positions and even develop vices such as weaving and rubbing. These produce open wounds that require constant attention. Before the animal is closed into its crate, one must ensure that the crate is large enough but not so big that the animal may fall and injure itself in rough conditions. In warm weather the rhino and the crate can be washed down daily with sea water. The rhinos enjoy this very much and it helps to alleviate boredom. This also seems to clean and heal wounds.

## 6 Emergency tranquilization

If an animal starts performing in its crate, it can usually be calmed down using azaperone: juvenile 50 mg; sub-adult 100 mg; adult 150–200 mg. If this does not work, or if the animal is stuck in its crate or breaking out of its crate, there are two alternatives.

Xylazine. Dosage rate: 0.25–0.5 mg/kg. This can be injected intramuscularly or by means of a dart. If not sufficient, repeat with another 0.25 mg/kg half an hour later. The above dosage should be reduced if the animal has been given azaperone, if it is in poor condition, or if it is weak due to struggling. If the animal is inadvertently overdosed the effects can be reversed using yohimbine hydrochloride: 0.125 mg/kg, preferably IV otherwise IM.

Etorphine. If the attendant is qualified and experienced in the use of etorphine hydrochloride, it may be used to calm a potentially fractious animal. The same dose that was used to load the animal can be used here.

## 7 Emergency destruction

If an animal has to be destroyed during transportation it may be shot, using a suitable weapon. To try and visualize the site of a rhino's brain, extend an imaginary line from the base of one ear to the opposite eye and do the same from the other ear. Where these two imaginary lines cross is the locality of the brain. If this method of destruction is undesirable or dangerous, then 1 g of saxamethonium (Scoline<sup>®</sup>) can be administered intramuscularly either by hand or by means of a dart. The person administering this drug must be aware of the potential danger involved – there is no antidote and accidental self administration will probably prove fatal.

### 8 Air vs. sea transportation

From the foregoing it is plain that travelling by sea is a major operation that involves much work and also a lot of stress and discomfort for the animal. Besides being much quicker, transporting animals by air is less risky and more humane. When going by air, one must ensure that the animals have undergone a thorough boma training right through to a thorough crate training process. An animal that breaks out of its crate in an aeroplane is a lot more dangerous than one on a ship!

## Accommodation of the white rhinoceros *Ceratotherium simum* and black rhinoceros *Diceros bicornis*

P.S. Rogers

Accommodation of the white rhinoceros is described below. Aspects of accommodation for the black rhinoceros that differ from that of the white rhinoceros are discussed at the end of the paper.

### The white rhino...

- Is big, strong, dangerous, and unpredictable.
- Is a gregarious animal and therefore likes to see and be with other animals of the same species.
- Will calm down more quickly in captivity if the walls of the bomas allow it to see animals in the neighboring bomas, and to see and get used to the activity around the bomas.

### Precautions

- Accommodation facilities should be of a very sturdy nature: a rhino will search for a weak point and will work at it until it gets out.
- The rhino must be put into a big boma initially to allow it to settle down.
- The boma should be in a quiet area away from roads and other potential stresses in order to minimize problems that may be encountered with adaptation to captivity.
- It is very important not to allow visitors until captive rhinos have settled down. The human element should be restricted to necessary personnel only.

### How to accommodate the white rhinoceros

Bomas are used for an adaptation and training period before transportation of the captive animals to another area. Alternatively, the bomas may be used to receive animals and to familiarize them to the local conditions before release. The bomas must be strong as captive rhinos will always attempt to break out of confinement.

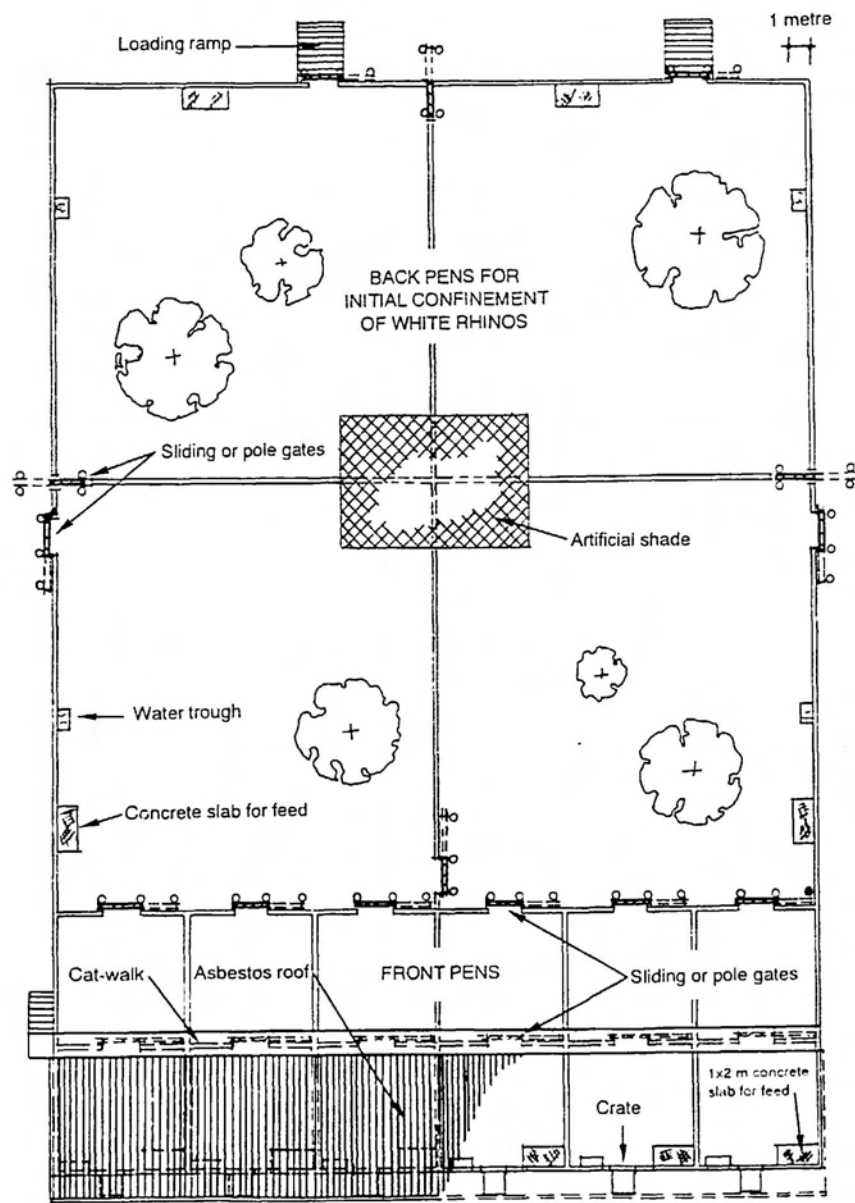


Figure 1. Permanent holding facility/training boma for rhinos.