

## Module 6 - Component 3



# Plastic boma method part # 2

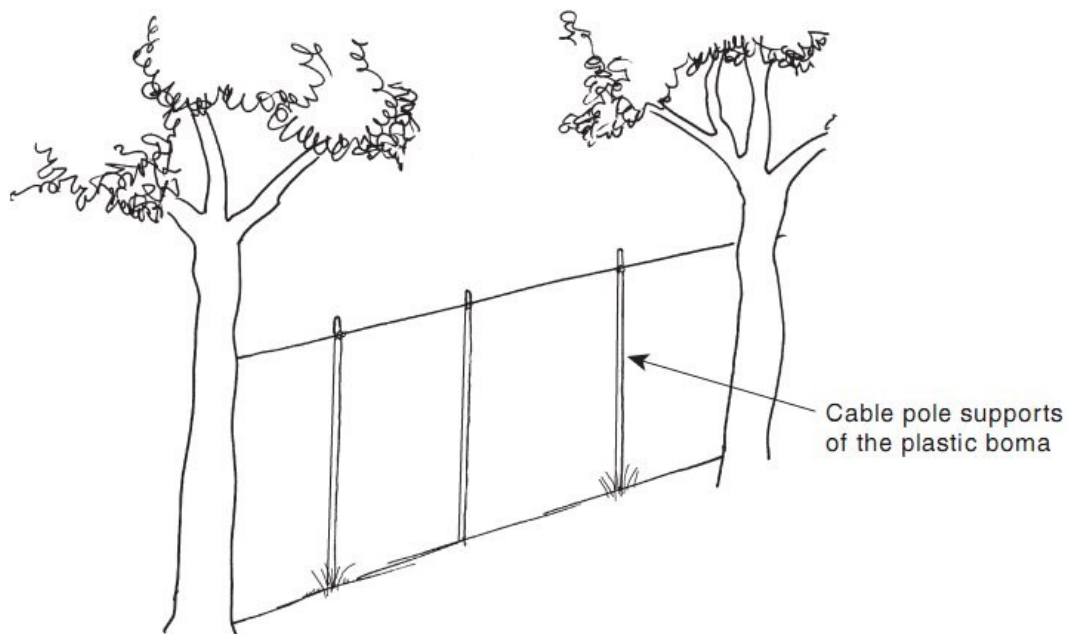
## Ramp and crush

The positions of the ramp and crush are determined at the same time that the gates and sides are sited and are built by a separate team. In the crush area, the animals are crowded and handled the most, placing greater pressure on the sides than elsewhere in the boma. It is at this point that the animals are confronted with their captors. Their stress levels may be exceeded, with resultant injury and possibly even mortalities. As the animals become restricted further towards the ramp, so physical pressure against the boma and crush sides increases, and they are in danger of collapsing if not structurally sound. To withstand this pressure and to ensure good control of the animals at this point, a solidly built crush and ramp are indispensable. Once the animals have been closed in a solid crush, the operator can relax, knowing that the animals are finally caught. The animals respond to the reduced pressure on them and, in turn, they relax. They may be held temporarily in the crush to cool down, pending loading or to change transport. The crush is the ideal temporary space for treating animals with long-acting neuroleptics, holding them quietly until the drug has taken full effect prior to loading. It is also useful for darting out large animals within, bringing them down with narcotics for individual bleeding or treatment, as required. The provision of a solid crush works particularly well with species that are inclined to fight when loaded in trucks, such as wildebeest. They can be tranquillised beforehand in the crush and loaded only once the drug has taken effect. Impala, waterbuck and kudu are the only species that tend to panic in the crush and should be loaded directly onto the trucks. The animals are tranquillised by gaining access from above and using pole syringes from each side of the crush. This is done in conjunction with a person using a marker on a long pole, as well as employing sufficient staff to carry out the task quickly and efficiently. A solid crush provides the opportunity to access animals for sorting through partitioned crates, as the animals may be loaded and unloaded during the sorting process. The disadvantage of the system, however, is its weight and bulkiness, which requires additional effort when setting up. However, for the degree of control a solid crush offers in stress management, it more than compensates for this inconvenience, providing for greater capture success and direct reduction of mortality.

A great deal of thought and trial and error has led to the development of the sliding door complex, conveyor-lined steel sides and the mobile ramp combination currently used by Game Management Africa of Zimbabwe. The system is reasonably portable and easy to erect in the same time that the remainder of the boma is being set up. Trained staff should be able to erect the entire boma system within four hours of siting the boma. This development has also been directly responsible for the drop in mortalities to less than 2% from the 5–10% level of normal capture loss seen previously. Moreover, the provision of a solid crush area prevents damage to the plastic as a result of piercing by horns or hooves, thus prolonging the life of the plastic.

**The crush system comprises three parts from front to rear:**

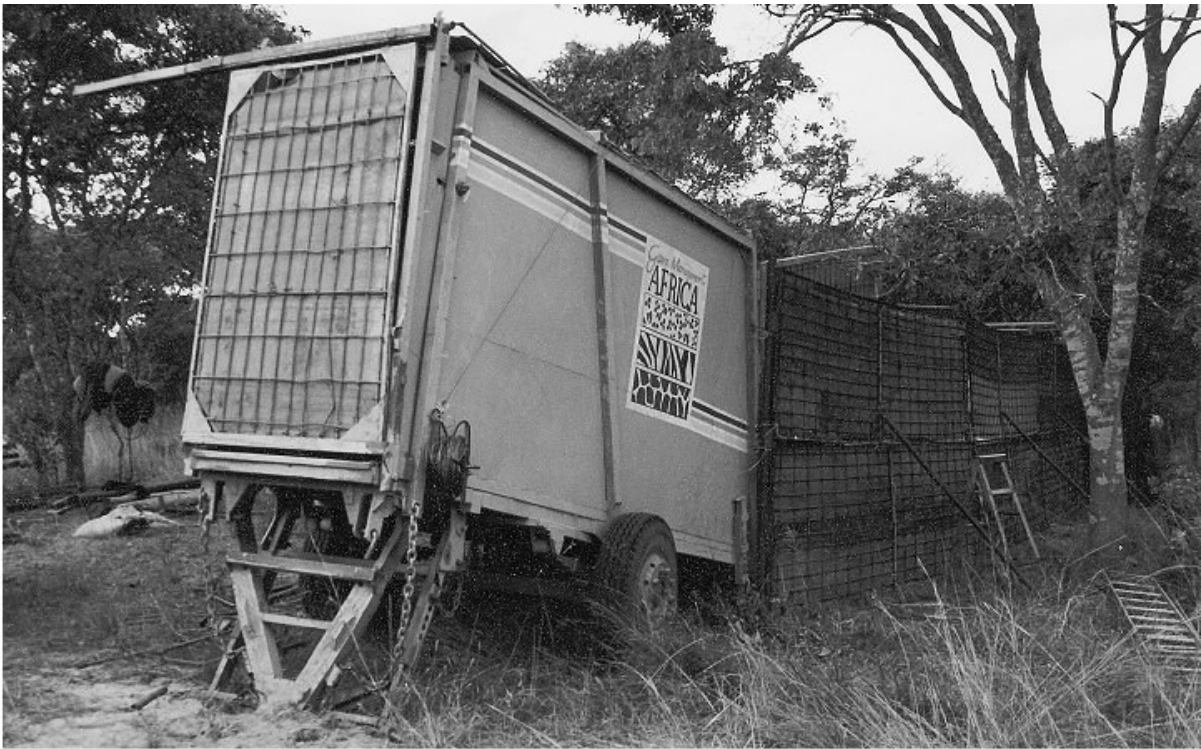
- The ramp
- The crush or calming area, and
- The sliding door complex.



**Figure 6.14** Support poles supporting plastic between trees.

## Ramp details

The ramp itself is designed to provide a funnel-shaped passage for the animals up the ramp to prevent individual animals from blocking the entrance during loading, as buffalo or wildebeest usually do. The unit is entirely self-supporting, built as a separate trailer, and only requires that it be positioned and tilted to be fully functional. The tow hitch folds down and away, and the front legs drop into place to achieve rigidity. The legs are fully adjustable, complemented by additional (duck) legs to the rear for adjustment to the required loading height, depending on the transport bed height used. The back of the ramp opens by dropping the tailgate and folding back the rear door against the crush side. The head of the ramp is fully adjustable to maintain a profile perpendicular to the ground, irrespective of ramp height and fits snugly against the transport crate. An independent slide door is placed on the ramp to provide an extra control facility besides the crate door. It also serves to close off the ramp in the event of changing vehicles while additional animals remain confined in the crush.



**Figure 6.15** Ramp for loading wild animals.

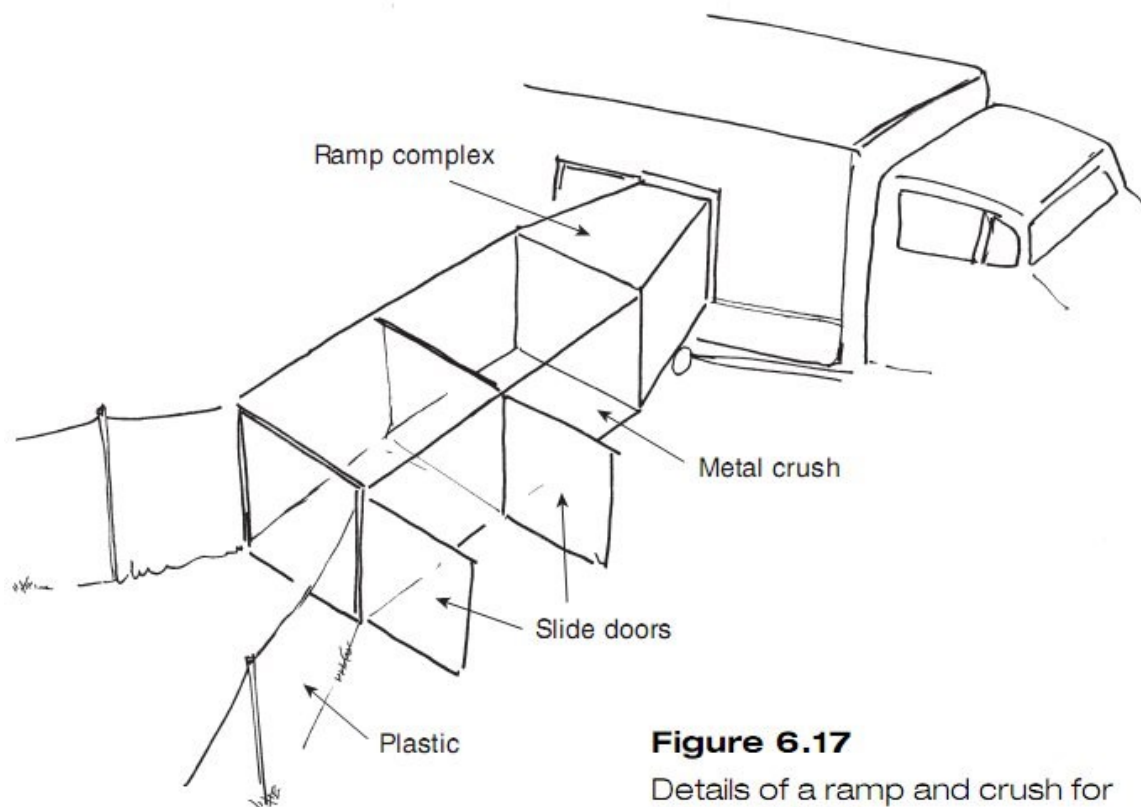
The folding ramp head folds back into itself for ease of transportation. A sliding floor section can be pulled out, abutting against the crate, to prevent animals' legs from thrusting through. The roof is covered, forming a tunnel and providing an attractive way for animals to "escape" into the crates. The roof is constructed with hinged panels and the top accessed via a ladder, making it possible to push the animals forward from above if necessary.



**Figure 6.16** A well-constructed crush.

The crush and calming area are constructed from steel frames covered in conveyor belting, mounted one on top of another and joined end to end to produce a solid, walled section. The sides are joined by means of steel rods that interlock the sides with each other and with the upright poles fixed into the ground. The poles are fixed to the ground outside of the boma, with short sections of jumper drill rod hammered in through a hole in the base plate designed specifically for this. This is done instead of digging holes, so as to cut down on time. The sides are kept apart and braced by overhead fixed-distance crossbars fitted into the top of the poles.

The author advocates the use of four sections on each side, with an additional door in the centre between the ramp and the entrance slide door to provide separate compartments. However, more may be added, or some left out, depending on the numbers of animals to be captured or the type of operation required of the crush at the time, for example, the culling of impala. The shape may be varied to suit different operations.



**Figure 6.17**

Details of a ramp and crush for mass capture.

## Traditional setup for bulk-loading purposes

Overhead steel stay pipes are fitted on top of the upright section of the crush to maintain the parallel position of the sides. This facilitates the mounting of a mobile back gate onto the front of a chase vehicle to load dangerous animals through the system if necessary, such as buffalo and giraffes. Experience has shown that a wheeled mobile push board is generally unnecessary, provided that the transport crates are suitably designed. However, should the problem arise, the system will provide the necessary backup. An additional separation slide door may also be fitted in the crush to subdivide a herd into manageable groups for bleeding or loading purposes.

When conformed for giraffe capture, the overhead braces are removed, and additional side supports are added on the outside to strengthen the sides. An additional top cable is added to heighten the sides, from which plastic is hung so that the giraffes cannot see out. For buffalo, the sides are supported in the same way, using steel supports braced against the side and secured to the ground with jumper rods in the same way as the side poles.

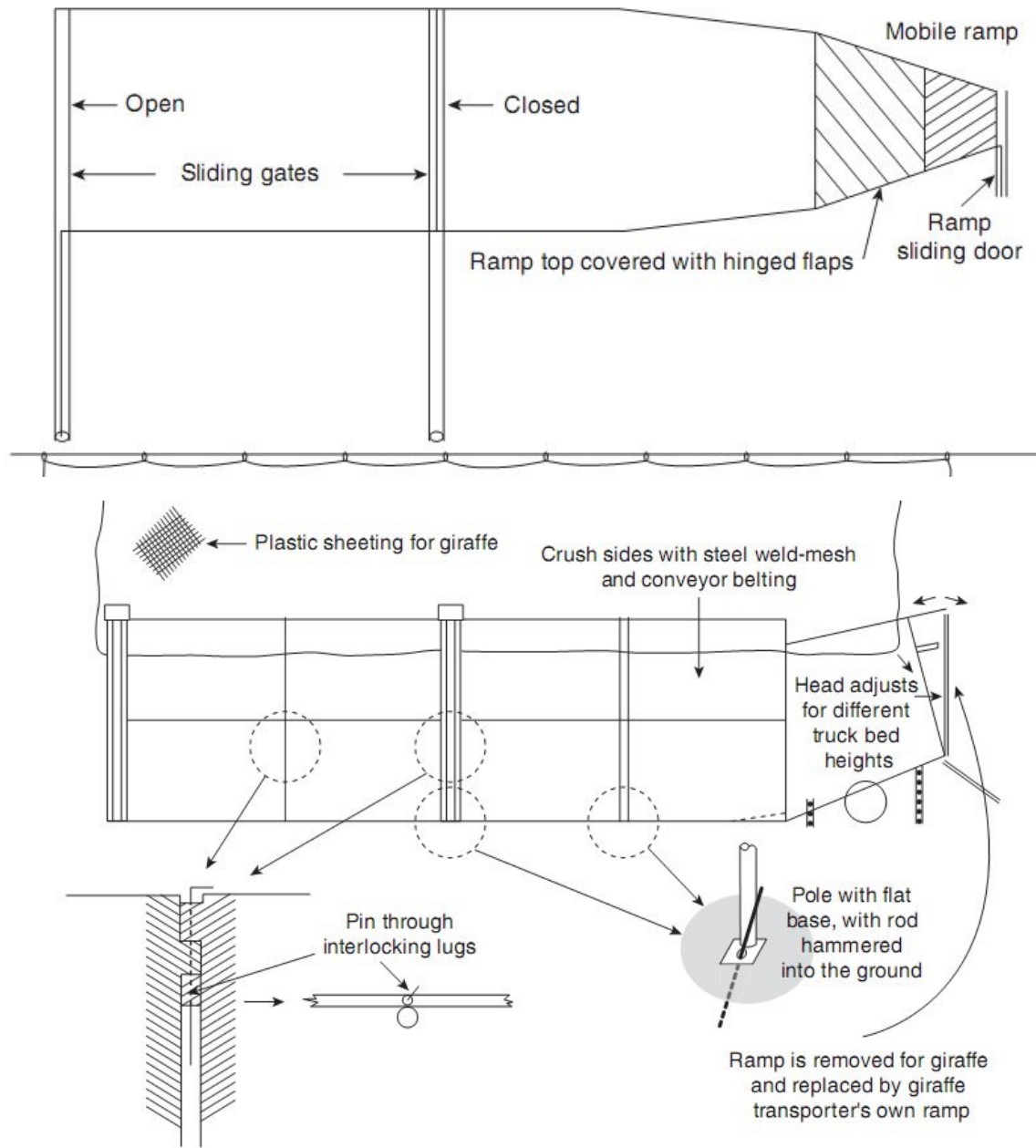


## Setup for culling purposes

The cull crush includes additional slide doors to create several compartments, thus allowing the animals to be brought forward in batches, depending on the number of carcasses to be processed through the butchery at any one time. The system can also be rearranged to facilitate loading of individual animals into single crates. These crates can be placed either end to end, or in several banks set side by side, into which the animals funnel and are cut off by the sliding crate doors. The sliding door complex has replaced the traditional plastic sheet gates used in the past to block off the retreat of animals once they have entered the crush complex. Animals doubling back at this point usually broke back through all the gates into the main boma complex. This increased stress among the animals, and some were even able to escape from the boma. More control was therefore needed at this point.

The incorporation of a large, solid sliding door in the system at the rear has provided for the control needed at this point. The door, 5 m in width, is constructed from steel and conveyor belting and slides on rails across the crush entrance. It is activated from the outside, effectively encompassing the animals with a solid, walled construction in the crush from which escape is not possible. Depending on the state of the animals when they enter, they are either rested for 12–15 minutes, or loaded immediately by pushing the animals forward gently using a piece of board or plastic sheeting held from above the crush sides. Should they refuse to enter the ramp, a push board behind them may be used to urge them on gently.

Additional slide doors configured in the same way can be placed anywhere in the crush system in between any of the sections, as required. The overhead rails supporting the slide door are deliberately bulky to provide strength and are easily seen by giraffes, which simply duck beneath them. Once the boma is nearing completion, the pilot must walk out in front of the boma to check on the camouflage, anticipating how it would look both in the morning and in the afternoon from the different positions of the sun reflecting back. The pilot should walk towards the boma on the track the animals are expected to follow. He or she should note clumps of trees, crossing places and any unusually high trees, as well as how conspicuous the flags are from the ground, as they may alert the animals prematurely. The pilot must then proceed through the boma, anticipating areas that may present a problem up to the crush. Immediate steps must be taken to remedy these. This procedure will also help to pinpoint the cause of any problems in the boma later during capture.



**Figure 6.18** Diagrammatic view of a crush and ramp complex. Note the increased side height with plastic for eland, waterbuck and giraffe.



## Operation of the plastic boma

Assuming that the boma has been correctly sited and properly camouflaged, the operation is carried out as follows. Staff manning the various gates, the ramp and the transport crate doors must all be in position for loading prior to the commencement of the drive. The use of ground-to-air radio communication from the pilot to the ground is essential to anticipate and/or manage problems. It is important to have responsible and experienced people at strategic management points, including all the gates and the ramp area. They should be well briefed beforehand on the species of animal to be driven and the approximate numbers involved. A physical check is carried out immediately prior to the drive to make sure that everybody is in place and ready. A flight over the boma on take-off is also useful to ensure that the system is ready, and all the gates are open. The helicopter proceeds to find the animals and commences driving them towards the boma.

Avoid operating during the hottest time of the day, particularly when temperatures are in excess of 25 °C. During the winter months, temperatures are acceptable even at midday and it is possible to drive throughout the day. Sufficient time should be allowed during late drives to ensure the safe loading of animals before daylight fades. Remember, too, that the helicopter may need to return to base before dark if it is not going to be left in the field. Once the animals are located, they should be driven slowly towards the boma. The success of the drive is largely dependent on the pilot's experience. However, this is not crucial if an experienced operator accompanies the pilot and the helicopter is fitted with good intercom communications, preferably a "hot" microphone system; that is, one that is activated by sound and not by a switch. Rather than directly chasing the animals, the helicopter should merely be a nuisance to them from which they want to get away.



**Figure 6.19** Sable antelope in the crush before loading.

Animals generally behave in predictable patterns according to species. For instance, sable and zebra are easily directed, whereas impala are reluctant to move in any determined direction, moving rather in short bursts from cover to cover. In small game areas where game is relatively tame, they can be extremely difficult to move, using large trees to shelter under and thus preventing the close approach by the helicopter. Animals can become habituated to the helicopter to a point where they eventually ignore it and refuse to be driven thereafter. Wildebeest are prone to zigzagging from side to side. One must try not to get into the position of following their behaviour, correcting and overcorrecting in much the same way as a car that is out of control. These animals seldom move sedately, rather everything is at a panic and a rush from start to finish, with the animals seemingly exhausting themselves, particularly if the drive is a short one. Fortunately, they are hardy and recover quickly once settled. Boma entrances should be as wide as possible to accommodate such wild behaviour on the final approach. Although eland is relatively easy to drive, problems have been experienced with lead cows, particularly those accompanying nursery herds. They will constantly try to turn the group into the wind in an effort to monitor danger ahead. With experience, this behaviour can be used to the operator's advantage and the animal turned downwind at the last moment before entry into the boma.



**Figure 6.20** Captured zebra tend to bite and kick.

Buffalo are reasonably easy to drive. However, a large herd can be well spread out while grazing, requiring patient herding towards one another before finally driving them towards the boma. Cows with young calves are more difficult to handle, often turning back and attempting to hide with their newborn calves. (More details regarding differences between species are provided under the relevant sections on individual species in later Components.) Reluctance to continue moving in one direction is usually due to some unforeseen obstacle that might not be indicated directly by the driven animals. It is indicated, nonetheless, by the increasing difficulty experienced in directing them. As they approach the main gate, more pressure is required to prevent them from balking at the entrance. Ideally, the area immediately in front of the boma should be more open and devoid of any large trees. Where the animals clearly observe (or smell) a problem, they will invariably change direction from the source and refuse to move towards it. If additional pressure is placed on them at this point, the situation is aggravated.

The observation by incoming animals of plastic or shine, unlike their detection of the scent of impending danger, is not always obvious from the helicopter. At no stage will the animals suddenly stop and seem to stare at the problem, rather they become increasingly uncooperative, which steadily worsens as they near the entrance. Finally, they ignore the helicopter altogether and break away from the entrance. The scent of humans, even a few hours before, can trigger this response. It is therefore extremely important to limit human activity at the main gate at all times. Where the animals are wild, ideally the boma should be erected the day before capture to reduce the scent left behind. In small game areas the opposite is true. The animals are best caught the same day before they accidentally discover the boma. For this reason, the main gate is assembled separately by a separate group of workers as soon as the boma is sited. The main gate must be completed as soon as possible and the time it has to air before capture commences, maximised.



## Plastic boma method part # 2

During the drive it is important for staff to remain well hidden behind their respective curtains, even though the animals may pass close to them. At no time should they attempt to assist the drive by running out from their positions, which will almost certainly result in the animals doubling back rather than entering. The decision to give the signal to close the gate should rest entirely with the helicopter pilot or capture operator in the helicopter. All gates making up the entrance are then closed simultaneously, irrespective of what the animals are doing at the time. Despite efforts to camouflage a boma, sighting of the plastic can still be a problem, depending on the angle of the sun at the time of capture. Problems of this nature can be alleviated by slacking the cable, effectively lowering the plastic out of sight, or capturing only in the morning when the sun should be from behind, thus reflecting forward. Alternatively, if the plastic is illuminated by the sun shining through it, a double layer of plastic is used to prevent this.

Once the animals have passed through the main gate the signal to close the curtains is given, either by radio or by a continuous blast from a siren fitted to the helicopter. Experience has shown that simultaneous action is best achieved by giving a horn-type of signal, which is more reliable than using radios, particularly when several gates need to be closed at the same time. Subsequent drives, particularly on the same day, usually result in the animals coming in balking slightly at the main gate, as they pick up ground scent from the previously drawn curtain. Care should be taken to reduce the obvious scrape marks from dragging the curtain by sweeping the area with branches. The gate is reopened as soon as the boma has been cleared to allow the area more time to air before the next drive.



## Plastic boma method part # 2

Where animals repeatedly break to the one side of the boma mouth, there is some unforeseen problem, usually in the design of the boma. Laying down a scent path directly out and away from the side of the boma has been used to advantage to direct the animals in. This is done by walking out the front of the affected corner gate for approximately 50 m and back, but not across the intended path of the animals. Obviously, wind direction must be determined beforehand to minimise the possibility of wind change, which would then blow scent across the boma mouth, causing the animals to break the other way. Once the animals pass into the main boma area, they usually pass through the first gate without needing any further prompting from the helicopter, except impala. The operator at this gate should have a radio and be fully briefed regarding the number of animals expected to enter the boma, in order for him or her to determine when all the animals have passed this position. The animals often run all the way through the boma into the crush area, and sometimes even into the truck itself. Occasionally, incoming animals will balk at the entrance of the crush, often due to the colour contrast between the plastic and the crush.

The crush, therefore, needs to be painted the same colour to prevent clear definition between them. Problems are also experienced wherever the boma suddenly narrows, something the animals generally dislike, particularly under windy conditions when the sides of the boma flap about. This can be avoided by placing nets against the walls and stretching the plastic from top to bottom at this point. In the approach area immediately in front of the crush, there should preferably be one or two small bushes remaining to semi-camouflage the crush entrance ahead, inviting the animals forward in their bid to locate a possible way of escape. Alternatively, branches hanging down in the entrance of the crush will achieve the same objective. The provision of additional gates at these anticipated problem areas close to the crush, which are closed behind the entering animals, offers further stimulus and control over the animals to get them through into the crush.



## Plastic boma method part # 2

Equipment and plastic should be allowed to “weather” rather than painting or renewing them each season, as they are more acceptable to the animals when providing less of a contrast. Once again, the animals’ ease of movement through the system depends largely on boma layout, with the ramp at the far end providing the most obvious way of escape. Animals driven easily into the boma and moving readily through it are undoubtedly a tribute to a well-sited, well-designed boma. Some species, particularly wildebeest, will mill around a few times before finally making their way unaided through the boma. By contrast, impala seldom move directly through the boma, usually stopping in a huddle in the centre of the main boma. They have to be herded on foot or driven forward by the helicopter towards the first curtain. It is critical not to place too much pressure on them at this stage. Often when impala panic, they run in the direction they are facing at the time, which is generally backwards towards the beaters.

When animals repeatedly circle at the first gate back into the main boma area, the internal wing should be extended as soon as possible. Usually, this procedure alone is sufficient to coax the animals around the wing and up through the narrower corridor of the first gate. Thereafter, they usually pass through the remainder of the system without further prompting. The helicopter may be used to advantage to move the animals through the first and second gates, where-after they can be driven by beaters using plastic sheeting. The use of the helicopter is not advised beyond the second gate, where it could encourage them to challenge the plastic sheeting. The down draft of the helicopter could also blow up the gates, providing a possible escape route. Billowing plastic, flapping around the animals, traumatises them considerably.



### Plastic boma method part # 2

In most instances, the suggested boma design encourages the animals to move forward on their own, as the activity behind them caused by the closure of the gates invariably spurs them on. In addition, the wind is now from behind them, carrying forward the smell of humans, which they naturally want to get away from. The bottom cable of the main gate is run immediately over the entire distance of the front gate and strained to a pre-set winch on the far side. Until this cable is strained in position, the plastic curtains, once drawn closed, are held down by additional helpers before being clipped onto the bottom cable the moment it becomes taut. This performance is repeated at the remaining gates, except of course that the bottom cable is already in place. Only two persons at the second gate are necessary for this purpose, as their numbers are boosted from additional staff coming forward from the first gate as they run up behind the animals and can assist once these have passed through.

These people then again run quickly forward to the curtains around the corner near the crush to help hold down the gates and encourage the animals to move into the crush beyond the steel/conveyor belting door. The door is finally shut, completing the capture exercise prior to loading. Depending on the calmness of the animals when they arrive in the crush, they can either be loaded immediately or be allowed to rest for a few minutes before loading. Loading is accomplished by a few helpers moving into the crush behind the animals from the two side "staff doors". The animals are gently pushed forward into the truck, using a "force" board or a piece of plastic sheeting. Most often, though, it is quicker to use staff and plastic from the top of the crush sides rather than having staff enter the crush itself.



As soon as the animals have been loaded through the boma and are successfully held in the crush, all the boma gates may be reopened in anticipation of further capture. As a matter of principle, always ensure that at least two gates are closed behind the animals at any time. If the animals should break back, there would, therefore, be an additional gate closed behind them to keep them in the system. When there are too many animals to be loaded into one crate, the crush system provides for the loading of several mass crates by closing the sliding door on the ramp face after each successive loading, thus providing time to move other transport into place. While this is taking place, it is advisable for staff to leave the crush area to allow the animals to calm down between successive loading. If a large number of animals have been caught, more than is required for loading three bulk crates, they should be split up in the main boma beforehand using plastic and the internal gates.

It is important to use well-trained staff during the loading procedure, executing it as quietly and efficiently as possible to prevent the animals from being traumatised and jumping against the plastic. An efficient operation is always characterised by the high degree of control exercised over the animals and the quiet efficiency of the staff. Where this is not the case, the operation is characterised by a great deal of noise and shouting, resulting in stressed animals. Loading is best carried out during the day rather than at night, as lights reflecting from the plastic in front of the animals will confuse them. Any major problems experienced during loading are invariably the result of poor crate design. Either the crate is too dark inside or too small, or there are too many gaps in the sides of the crate through which the animals can see people. The animals may try to force themselves through the gaps, which can result in broken necks and legs.





Certain species, such as eland bulls, kudu and waterbuck, cause problems if held in a boma rather than being loaded immediately. They are excellent jumpers and will jump out if too much pressure is exerted on them. This situation can be prevented to a degree by raising the height of the boma and the crush forward of the first gate, making an attempt at jumping a less attractive option. Buffalo, however, will not challenge the plastic at all unless they can see out. They should be approached by vehicle and not on foot when being handled in the boma, as they will invariably attack. When they stubbornly refuse to be loaded when managed from the top of the crush sides, they can be forced ahead through the crush by using a push board arrangement fixed to the front of a chase vehicle, and the occasional prod from electric prodders. The vehicle is normally introduced from outside the boma through the plastic side, or from a separate compartment near the crush door.

Giraffes pose a different set of problems due to their height. The traditional boma is employed in the same way, but the plastic along the sides from the third gate forward should be heightened to prevent the animals from seeing out. The top cables of the main gate and internal gates should be repositioned well above the animals, and the plastic drawn and clipped to the bottom cable in the normal way. Even though at the centre the bottom of the plastic is above ground, giraffes seldom challenge this arrangement. Where possible, the entire herd should be driven towards the boma and the large adults separated close to the front, with only the youngsters driven through into the boma. Skilled helicopter pilots are obviously preferred to improve the chance of success of such an operation.



### Plastic boma method part # 2

The plastic boma method without a doubt has revolutionised the procedure for capturing large numbers of wild animals. It does, however, require proper siting, well-planned management and the combined effort of a highly trained and well-disciplined team to produce the best results. Possibly the only major setback of the system is the difficulty in adapting it to changing wind directions. During the months of July to September, wind direction in southern Africa is usually uniform from the east. Earlier in the year, particularly during May, the wind constantly changes and comes from all directions, often blowing for several days in the “wrong” direction. Experience has shown that it is virtually impossible to adapt the boma to accommodate this change, requiring cleverly thought-out plans beforehand for reducing smell detection in front of the boma.

Even once the animals are in the boma, problems are encountered when driving them forwards against the obvious presence of people in front. Provided that care is taken using the wind and personnel to advantage, the animals can be coaxed forward gently. Under these circumstances, it is advisable to put the boma up and capture immediately while the wind remains in the required direction. One should not attempt to capture if the wind then changes unfavourably, but rather wait until the following day or rebuild the boma. Any panic will almost certainly result in the animals breaking out. Where the capture cannot be postponed until more favourable wind conditions prevail, it is advisable to use a multi-gate system at the main gate position, as discussed earlier, to help accommodate the problem.

