Technique

Helicopter-assisted boma capture of African wild dogs *Lycaon pictus*

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The first successful use of helicopter-assisted boma capture of African wild dogs *Lycaon pictus* is reported. Techniques used, effort expended and success rate achieved, are described. The first attempt to catch a particular pack is likely to be the most successful and should be carefully planned, as the dogs quickly learn to avoid being driven into the boma. Boma capture offers the possibility of quickly catching and relocating a complete pack of wild dogs.

Key words: capture, *Lycaon pictus*.

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Introduction

The distribution and abundance of the African wild dog *Lycaon pictus* Temminck, 1820 have been severely reduced in recent years (Fanshawe *et al.* 1991). The species is listed as endangered in South Africa (Smithers 1986), and Ginsberg & Macdonald (1990) have recommended that it be declared endangered throughout its range.

During September 1991 a pack of four wild dogs, comprising three adult males and one adult female, was observed in the 7 200 ha Mthethomusha Game Reserve on the south western border of the Kruger National Park. These dogs were identified from photographs to have originated from the Kruger National Park (Maddock & Mills *in press*). The dogs settled permanently in the area and, through the addition of 15 pups born in June 1991, increased to 19 in the latter half of the year.

One of the main objectives of the Mthethomusha Game Reserve is to provide the maximum sustainable benefit in terms of game to the surrounding local communities. With this objective in mind, the impact that such a large pack of wild dogs could have on their prey through a high kill frequency (Fuller & Kat 1990) could not be reconciled by the reserve managers, especially as the tourist value in terms of frequency of wild dog sightings was perceived to be limited.

Destruction of the animals was not acceptable in view of their endangered status. Relocating the pack to the adjoining Kruger National Park was inadvisable as the park was considered to be at ecological carrying capacity as far as wild dogs were concerned (Maddock & Mills *in press*). A suitable area was the 37 000 ha De Beers Venetia Limpopo Nature Reserve in the northern Transvaal, 400 km to the north-west of Mthethomusha Game Reserve, into which the owners were pleased to release the dogs.

The broken and rugged nature of most of the Mthethomusha Game Reserve and the size of the pack posed problems for the capture of these animals, which can usually be easily approached and darted from a vehicle in more open areas. These problems were largely overcome by the use of a helicopter and plastic capture bomas. This paper describes the manner in which the pack was caught and the problems encountered.

Study area

The Mthethomusha Game Reserve is located at latitude 25°27′ S and longitude 31°17′ E. The area is characterised by a broken granitic landscape which is covered by an open to moderately closed woodland. The elevation varies from 400–1 000 m. The reserve is completely enclosed with a 2,4 m high game fence, that was electrified in December 1991.

Methods

A Bell 206B III Jet Ranger helicopter was used to locate the pack and herd the dogs to the capture site. Twelve separate capture attempts were made between 4 December 1991 and 8 January 1992. After the first capture a female pup was equipped with a radio-collar and released. It rejoined the rest of the pack which greatly facilitated the subsequent locating of the pack. Three capture methods were used:

- Capture boma. A plastic capture boma or corral was erected, as described by Densham (1974) and Ebedes *et al.* (1989). The mouth of the boma was approximately 100 m wide, while the boma itself was approximately 150 m long. The plastic curtains were 2 m high. At the end of the boma a 120 m^2 capture cage with a swing gate was erected. White flags placed in the top of prominent trees demarcated the location of the mouth of the boma to the helicopter pilot. During the capture operation four bomas were constructed and used six times.

- Drop-nets. On two occasions a series of three parallel lines of drop-nets (Ebedes *et al.* 1989) 150 m long and 15 m apart were erected.

- Net-kraal. A net-kraal consisting of a half circle of nets tensioned with a top and bottom cable was erected. The entrance of the circle, approximately 80 m wide, was fitted with plastic curtains. Drop-nets were placed in the net-kraal to facilitate the actual catching. Two attempts were made with the net-kraal.

In addition to the above a net-gun (Ebedes *et al.* 1989) was used on two occasions.

Captured dogs were immobilised either in the capture cage, or the drop nets, to facilitate transport into a holding camp. Animals were darted with a Telinject dart system and each was given a dosage of 80 mg Zoletil (Vibrac Laboratories).

Results

The approximate distances over which the dogs were herded by the helicopter, the capture technique used and the number of dogs captured at each attempt are presented in Table 1. The total number of dogs captured exceeds the total pack size because several dogs escaped from the holding camp.

In the first capture attempt all the dogs were driven into the boma, but seven individuals immediately ran back out of the entrance as the curtain operators failed to close the curtains in time. The remaining dogs were driven into the capture cage and the door closed by hand. The dog fitted with the radio collar was released. During the first night in the holding camp, the current on the lower electrified strand dropped as a result of rainy conditions and five dogs escaped by digging under the fence.

During the second attempt the dogs were brought right up to the boma, but they veered away at the entrance. This may either have been due to them recognising the capture site and/or to a change in wind direction resulting in them detecting the scent of the curtain operators.

Before the third attempt the boma was moved, not only to disguise the capture site but also because the dogs were located much further away from the original one. During this attempt nine animals were caught, including the first of the four adults, the alpha female. Two veered away at the entrance and one escaped by scrambling over the 2 m high plastic wall. The radio-collared animal was again released, in order to facilitate the future location of the remaining dogs.

None of the four remaining dogs, comprising the three adult males and the radio-collared

Table 1
Success rate of each capture attempt of African wild dogs in the Mthethomusha Game Reserve. Boma numbers refer to a specific boma as some were used twice. Distances refer to straight line distances on a map

Attempt number	Capture method	Helicopter time (min)	Distance driven (km)	Number driven	Number caught
1	Boma 1	10	2,5	17	10
2	Boma 1	60	2	13	0
3	Boma 2	15	3	13	9
4	Boma 3	15	2,5	4	0
5	Boma 4	60	7	4	0
6	Boma 4	30	2,5	4	1
7	Drop-nets	20	1,5	3	0
8	Drop-nets	30	3	3	1
9	Net-gun	90	>10	1	0
10	Net-gun	120	>12	1	1
11	Net-kraal	20	2,5	2	1
12	Net-kraal	60	5	2	0

pup, were caught in the fourth and fifth attempts at two different capture sites, although at the sixth attempt the radio collared cub was again caught. The dogs had become extremely wary and, although they could still be herded towards the capture site with the helicopter, it became almost impossible to move them through the mouth of the boma. Each time they veered away and then would not react to the helicopter even at tree height.

It was then decided to erect a series of drop-nets. The dogs were easily herded into these on two occasions, but most escaped before the ground team could reach them to inject them with Zoletil. Only one adult male was caught by this method.

Next a net gun was used. A single male was chased for 90 min unsuccessfully in the morning and again for 120 min in the afternoon, before he was finally caught as he came ashore after crossing a small dam. Despite this exceptionally long chase the animal showed no sign of capture myopathy (Harthoorn 1976) and survived.

A net-kraal was the last type of capture site prepared. By now it was impossible to keep the two remaining dogs together when being moved by the helicopter. On the first attempt the adult male was caught in the nets and immobilised before he could escape. However, overnight he escaped from a wooden crate in which he was being held. The next attempt to drive the dogs with the helicopter proved ineffective as they would not react to the aircraft.

After an interval of four weeks another attempt was made to capture the remaining two dogs. The radio collared female was found dead from unknown causes and the adult male could not be located. He was still living alone in the reserve six months later.

Discussion

The manner in which African wild dogs can be herded by a helicopter and their ability to withstand significant physical stress makes the described method ideal for capturing them. This is particularly useful when large packs need to be captured in rugged terrain. If all the dogs are not captured on the first attempt one should be fitted with a radio collar and released, to ensure easy relocation of the pack for subsequent attempts.

Not surprisingly the dogs became progressively more difficult to herd. By the last attempt it became almost impossible to herd them in the desired direction.

The first attempt using a capture boma was the most successful as the entire pack was herded into the boma after only 10 min of flying. However, inexperience on the part of the curtain operators meant that seven dogs escaped. Care must be taken with the planning and securing of the boma as the first attempt is the one with the best chance of success and the most cost-effective. The following points are crucial: a) The height of the fence and boma curtains should be at least 2,4 m. b) No gaps should be left between the ground and the boma nets or curtains. c) Curtains must be closed quickly behind the passage of the dogs. d) Capture attempts should only be made if the boma is downwind of the dogs at the point of entrance.

The dogs were easily driven into the drop-nets, but nearly always managed to wriggle out of the nets before the ground team could immobilise them. More success may be achieved with a net-kraal, which is easy to set up and where the perimeter nets may hold dogs which escape out of the drop-nets.

The net-gun proved difficult to use effectively because of the dense woody vegetation and the speed, agility and small size of the dogs. It is not recommended for this species in woody and broken terrain, but might be successful in open country.

Conclusion

The helicopter-assisted boma capture of wild dogs is possible and makes fast relocation of a whole pack feasible. The plastic boma technique seems most suitable for large packs, while small groups of about five animals might be best captured in a net-kraal.

Adequate planning in the design and strengthening of both boma and holding facilities are necessary to avoid subsequent escape of the dogs. Animals which escape from captivity became extremely wary and more difficult to drive into a boma again.

The success of the operation was confirmed six months after the relocation of the pack when the alpha female gave birth to 13 pups.

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