

A Wild-to-Wild Translocation of Cheetahs from Private Farmland to a Protected Area in Zimbabwe (1994-2005)

Gianetta Purchase¹, Godwin Vhurumuku² and Duncan Purchase³

In Zimbabwe, the legal status of the cheetah *Acinonyx jubatus* is that of a specially protected species (Parks and Wildlife Act 1996), but on the ground the cheetah is often regarded as a problem animal. Since the early 1980's reports of cheetahs killing cattle on private ranches increased. It is thought in hindsight that this increase in cheetah reports was due to the eradication of lion and spotted hyaena on private land, the increase in game populations as many farmers switched from cattle to game, and a series of drought years. Conversely, in protected areas, cheetah numbers appeared low.

Prior to the translocation of cheetahs to Matusadona, cheetah sightings were rare. However, given our improved knowledge of cheetah behaviour especially in woodland habitats, this low density may simply have reflected the difficulties of locating cheetahs. In 1992, Zimbabwe (along with Botswana and Namibia) was granted permission to utilise 50 cheetahs a year as trophy animals as it was hoped that this would help compensate farmers who lost cattle and wildlife to livestock.

At the same time, the Department of National Parks and Wildlife Management of Zimbabwe (now referred to as the Parks and Wildlife Management Authority, PWMA) explored other non-lethal methods of mitigating conflict between farmers and cheetahs. In early 1993, with the assistance of the Zambezi Society, the PWMA began a series of captures of "problem" cheetahs on four ranches in the southern lowveld area of Zimbabwe, the source of most of the reports of cheetahs killing livestock (Anonymous 1994). The captured cheetahs were then released into Matusadona National Park (MNP), on the southern shores of Lake Kariba (Fig. 1). MNP covers an area of approximately 1400 km², which consists of two topographically distinct areas known as the valley floor and the escarpment. The es-



Fig. 1. Two of the cheetahs translocated from private land to Matusadona National Park between 1993 and 1994 (Photo: D. Pitman).

carpment is largely inaccessible and the release and monitoring of the cheetahs was confined to the valley floor area. Mopane woodland dominates this area, with interspersed areas of grassland (Fig. 2). There is also a unique habitat (referred to as the foreshore), adjacent to Lake Kariba that is created by varying lake levels. This habitat is devoid of trees but has an abundance of a nutritious species of floodplain grassland making it prime habitat for grazing herbivores.

The translocation

This translocation was entirely experimental in nature and no feasibility study was carried out prior to the capture and release of the cheetahs, except that it was known that MNP had a large population of impala, a preferred prey species of cheetahs, and suitable habitat. However, at the time of their release, MNP also had one of the highest densities of lions in any protected area of Africa and spotted hyaenas were also present. As the negative effect of these two latter species on cheetahs was not widely known at the time of the translocation, MNP was considered a suitable release site.

The cheetahs were captured on private land opportunistically with little effort made to capture known problem animals. It was assumed that removal of cheetahs would in itself help alleviate the problem of livestock depredation. Each group of cheetahs captured was kept in a boma in MNP for a period of 6 weeks before being released. The boma was constructed of open wire mesh fence so that the cheetahs could see their new surroundings. The fence was electrified on the inside and outside. Whenever cheetahs were in the boma both lion and hyaenas were reported to visit the boma, and in most cases attempt to get inside. The cheetahs were fed locally caught impala every day. In total 17 cheetahs (14 adults and 3 cubs) were released into MNP over a two year period.

Since the release of the founder population, the cheetahs have been regularly monitored with indepth studies carried out in 1995, 1998 and 2005. Monitoring of the released population included recording locations and group composition of any sightings, diet, movement patterns and interactions with other large predators. In 1998 and 2005, attitudes of the subsistence farmers surrounding the

national park were also assessed using similar questionnaire surveys.

Due to financial constraints and the rapid land use changes that occurred in Zimbabwe since 2000, it was not possible to monitor the situation on the ranches where the released cheetahs were captured. Unfortunately this has meant that it is not possible to determine if the removal of cheetahs from these ranches helped reduce livestock depredation.

Establishment of a cheetah population in MNP

The results of the first in depth monitoring study carried out in 1995 suggested that the cheetah population that had been released would not persist given the high density of lions in the park at the time, and the large movement patterns of the cheetahs (Zank 1995). Most of the home ranges of the released cheetahs observed in 1995 included areas outside the park, where threats from direct and indirect human persecution are high. However, in a follow-on study conducted in 1998, it was observed that the size of home ranges had reduced considerably since the 1995 study, with none of the cheetahs observed moving out of the park boundaries (Purchase & du Toit 2000). The density of lions recorded during the 1998 study was slightly higher than 1995, and there was still concern over the persistence of the cheetah population. The results of the 1998 study did indicate that the woodland habitat of the park could provide an adequate refuge for cheetahs from lions and hyaenas (Purchase 1998) but there was no conclusive evidence that this was the case. Cub survival at this point did not appear to be very high.

In 1999 and 2000, the number of cheetahs in MNP was estimated but no further work was carried out. In 2005, an evaluation of the entire translocation was funded by the Zambezi Society, which included an estimate of the current population size, availability of prey, numbers of potential competitors and the attitudes of farmers surrounding the park (Purchase & Vhurumuku 2005).

The evaluation study determined that until recently, the introduced cheetah population appeared to decline with the number of adults estimated decreas-



Fig. 2. Typical woodland habitat in Matusadona National Park, with open patches of grassland interspersed (Photo: D. Purchase).

ing each time an estimate was made (Fig. 3). However, in 2000 the number of sub adults recorded had increased substantially (Fig. 3) and by 2005, the total cheetah population appeared to have increased to 20 adults (the method of population estimation was not suitable for estimating the number of subadults; Fig. 3). Until the most recent study, adult cheetahs were not observed in groups, the only sightings of groups being females with cubs. However, during 2004 and 2005, groups of adult cheetahs were reported. This suggests that cohorts of male cubs have survived to form adult male coalitions.

Whether the increase in the cheetah population was a result of a period of establishment required for a new area, or whether it was due to a reduction in competition is not clear. Since 2000, the lion population in MNP has declined dramatically, a decline attributed to a decline in buffalo, their main prey species (Purchase 2004; Fig. 4). A similar decline appears to have occurred in the

hyaena population, although an estimate was not available for 2005 (Fig. 4). The increase in the cheetah population coincides with the decline in the other two predator species, both of which are known to have an adverse effect on cheetahs (Fig. 4). Further monitoring of the populations of all three species, with observations of interactions is required to determine whether the released cheetah population only established itself in the absence of competition.

Moving the problem?

The objective of the translocation was to determine if removal of cheetahs from areas where they were perceived as problem animals, to an area where they would be protected, could be an effective non-lethal management tool in Zimbabwe. Given that the cheetahs captured on ranch land were “problem” animals that were killing livestock, translocation to a new area may simply have moved the problem. MNP is surrounded by subsistence crop and live-

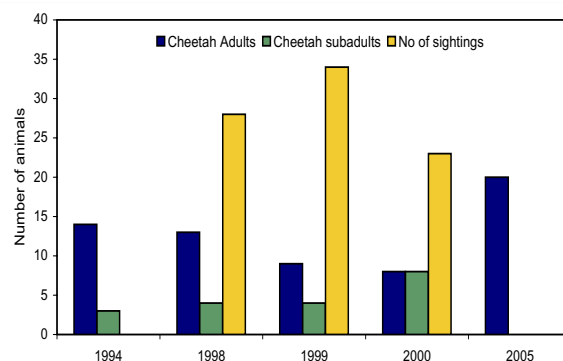


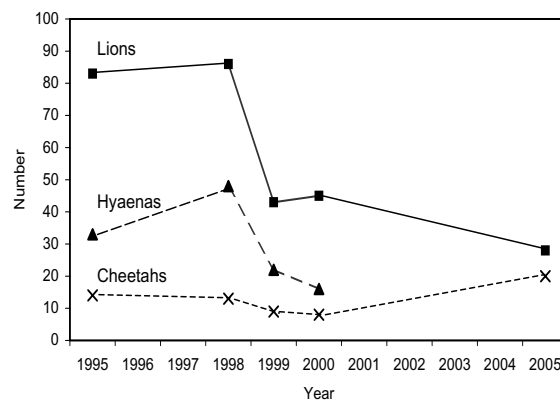
Fig. 3. Changes in the cheetah population of Matusadona National Park (valley floor section) since the translocation in 1994 until August 2005. Source data: 1994 (Zank, 1995), 1998 (Purchase 1998) 1999 and 2000 (Purchase 2004), 2005 (this study).

stock farmland and introducing animals from areas where they were reported to kill livestock was a risk.

The evaluation used results from a questionnaire survey conducted in 1998 (Davies & du Toit 2004) and a similar one in 2005 (Purchase & Vhurumuku 2005). The surveys were conducted to determine if cheetahs were seen on farmland adjacent to MNP, whether they were reported to kill livestock, whether the farmers were tolerant of their presence and whether the farmers had known about the translocation project.

In both 1998, and 2005, it was clear that cheetahs were not considered problem animals with only one household reporting the loss of four goats to cheetahs. Lion, leopards and spotted hyaenas were the main problem animals reported during both surveys (Table 1). Cheetahs were only reliably reported as present in three of the wards surveyed. In three other wards, respondents reported seeing cheetah but they had not identified cheetah correctly from pictures shown to them. It appears, therefore, that the problem has not been moved to farmland adjacent to MNP, although a cause for concern is that a number of respondents confused cheetahs and leopards when asked to identify them from pictures. As leopards were reported as a problem animal, this could mean that cheetahs are in fact killing livestock, but are being identified as leopards. It is also not clear whether cheetahs are not reported to kill livestock because the introduced population has yet to increase beyond the boundaries of MNP, or whether cheetahs are resident in the surrounding farmland but are not killing livestock. Further monitoring of the situation is required.

Fig. 4. Changes in the populations of adult lions, adult spotted hyaenas and adult cheetahs in the valley floor area of Matusadona National Park from 1995 to 2005. (Sources: Zank 1995, Purchase 1998, Purchase 2004, this study).



An interesting result of the survey of surrounding farmers suggests that where cheetahs are seen, the farmers are tolerant of their presence (Table 2). Conversely in areas where cheetahs have not been seen they are considered to be a threat to livestock, and most respondents indicated that they would not want them on their farms (Table 2). These results also add weight to the argument that cheetahs utilise the surrounding farmlands, but do not prey on livestock.

Conclusion

By 2005 it appears that a population of cheetahs has been established in MNP as a result of the translocation. Whether this is a result of time, or reduced competition is not clear and further monitoring is required. If reduced competition enabled an increase in the population, then changes in the numbers of competitors could adversely affect the survival of the remaining population. It appears that the problem of livestock depredation has not been transferred as a result of the translocation, but what is not known is whether removal of chee-

tahs from ranch land alleviated the problem of livestock depredation. Given the lessons learnt from this wild-to-wild translocation, it is recommended that if there are cheetahs preying on livestock in other areas of Zimbabwe, and in situ mitigation is not possible, that a similar translocation be carried out with monitoring at both the source and the release end of the translocation. There are still a number of protected areas and large private estates dedicated to wildlife conservation in Zimbabwe that have suitable habitat and prey for cheetah, although they all contain potential competitors. It could be that this non-lethal method of conflict resolution could be more effectively utilised to ensure the survival of the national cheetah population.

Acknowledgements:

The evaluation study was funded by a grant from Flora & Fauna International through its partnership with Rio Tinto plc, to the Zambezi Society. We would like to thank the Parks and Wildlife Management Authority for granting the Society permission to carry out this evaluation study, and also the 1995 and 1998 monitoring studies. We are

Table 1. Reports of livestock losses to wild predators in nine wards surrounding the Matusadona National Park. Losses were recorded during questionnaires surveys conducted in 1998 (Davies & du Toit, 2004) and this study (between Oct 2004 and July 2005).

Predator species*	Number of losses reported for each livestock species													
	Chickens		Goats		Donkeys		Ducks		Cattle		Sheep		Dogs	
	'98	'05	'98	'05	'98	'05	'98	'05	'98	'05	'98	'05	'98	'05
Lion	-	-	282	76	115	98	-	-	3	6	8	-	-	-
Leopard	-	-	44	44	-	12	3	-	-	-	-	-	3	3
Spotted hyaena	-	-	41	94	3	-	7	-	-	-	2	-	7	-
Wild dog	-	-	10	-	-	-	-	-	-	-	-	-	-	-
Cheetah	-	-	4	-	-	-	-	-	-	-	-	-	-	-
Baboon	114	46	148	15	-	-	-	-	-	-	-	-	-	-
Jackal	24	-	3	1	-	-	3	-	-	-	-	-	6	-

* During the 1998 survey, crocodiles, eagles, honey badgers, snakes and wild cats were also reported to have killed livestock

Table 2. Respondents reporting whether cheetah were present in their ward, whether they had knowledge of the translocation of cheetah to Matusadona National Park, and their attitude towards the presence of cheetahs in their ward.

Ward	Cheetah seen	Knowledge		Attitude		
		Yes	No	Positive	Negative	Don't mind
Mola A & B	Yes	1	24	11	0	13
Nebiri A & B	Yes	4	33	11	7	15
M/kuruma A & B	Unclear	0	22	2	12	7
Kanyati A & B	No	1	39	3	18	18
Gache Gache	No	0	10	2	3	6

grateful to the Nyaminyami Rural District Council for their assistance in carrying out the questionnaire surveys, and to the Lake Kariba Crocodile Farm for their invaluable logistical support.

References

Anon.1994. The relocation of cheetah into Matusadona National Park. 3 pp.
 Davies, H. T. and du Toit, J.T. 2004. Anthropogenic factors affecting wild dog,

Lycaon pictus, reintroductions: a case study in Zimbabwe Oryx 38: 32-39.

Purchase, G. K. 1998. An assessment of the success of a cheetah (*Acinonyx jubatus*) re-introduction project in Matusadona National Park, Zimbabwe. MSc Thesis, University of Zimbabwe, Harare.

Purchase, G. K. and du Toit J. T. 2000. Use of space and prey by cheetahs in Matusadona National Park, Zimbabwe. S. Afr. J. Wildl. Res. 30: 139-144.

Purchase, G. K. 2004. Factors affecting the ratio of lions (*Panthera leo*) to spotted hyaenas (*Crocuta crocuta*) in protected areas of Africa: competition and/or available prey. PhD Thesis, University of Aberdeen.

Purchase, G. K. and Vhurumuku, G. 2005. Evaluation of a wild-wild translocation of cheetah (*Acinonyx jubatus*) from private land to Matusadona National Park, Zimbabwe: 1994-2005. Report presented to the Parks and Wildlife Management Authority.

Zank, C. 1995. Population viability analysis for cheetah (*Acinonyx jubatus*) in Matusadona National Park, Zimbabwe. MSc Thesis, University of Zimbabwe.

¹ Independent researcher, dnp@mweb.co.zw

² Research Assistant, Zambezi Society, projects@zamsoc.org

³ Projects Director, Zambezi Society, duncan@zamsoc.org, www.zamsoc.org