



Research Article

ARE STRATEGIES FOR MANAGING HUMAN-WILDLIFE CONFLICTS IN KENYA WORKING? A CASE OF KITENGELA WILDLIFE DISPERSAL AREA

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ABSTRACT

Many strategies have been proposed and rolled out in an attempt to manage conflict between people and wildlife in different parts of the world. It remains to be seen how effective these strategies have been. Human-wildlife conflict in Kenya is an important factor affecting wildlife conservation on one hand and local people's livelihoods on the other. The study examined the effectiveness of four methods used to manage human-wildlife conflict at Kitengela wildlife dispersal area. The strategies examined included; use of livestock guarding dogs, complete fencing of Nairobi National Park, Fencing around homesteads and bomas, and compensating local community members who lose livestock to predation by wild animals. Data collection methods involved self-administered questionnaire, interview, and observation, and covered 105 local pastoralist community members, the Kenya Wildlife Service staff and a staff from The Wildlife Fund, a conservation NGO located within the park. Quantitative data were analysed by calculating percentages while qualitative data was analysis using the contents analysis method. It was established that even though these strategies were indeed employed to manage human-wildlife conflict at Kitengela, the conflict still persisted. Therefore it was concluded that these human-wildlife management strategies were not satisfactorily helping in eliminating the conflict. The recommendation reached was that community members should be supported to erect chain-link fences around bomas more cheaply.

Keywords: Human-wildlife conflict, Management strategies, Bomas, Kitengela, Nairobi National Park.

INTRODUCTION

Human-Wildlife Conflicts (HWC) is a serious concern all over the world as it impacts negatively on the success of conserving wildlife (Dickman, 2009; Nyhus *et al.*, 2005). In Kenya, there has been an increase in frequency, intensity and the consequences of negative interaction between people and wildlife. Animals involved in this conflict are many and they include; elephants, lions, leopards, cheetahs and hyenas, and many others. The 'cost of conserving large and sometimes dangerous animals is often born disproportionately by farmers and others living closest to wildlife'(Nyhus *et al.*, 2005). Wild herbivores destroy crops and endanger people's lives while carnivores kill livestock and sometimes also endanger people's lives. In retaliation, people kill wildlife. Some wild species like lions are killed for cultural reasons besides retaliation

(Kissui, 2008). Kissui (2008) also noted that the rate of retaliation is not uniform across the various species. He found out that lions were most vulnerable to due to their daytime attack nature and killing of large livestock like cattle and donkeys. HWC leads to the poor relationship between local communities living near wildlife conservation areas and those charged with the responsibility of conserving wildlife. This conflict, therefore, pits wildlife against people on one hand note; it also pits people against people on the other.

There are several strategies which have been put in place in an attempt to manage this conflict across the world with varying degree of success. Some of the methods used in Kenya include; fencing protected areas to restrain movement of wildlife, fencing around homesteads to ward off wildlife, rearing of dogs, compensating people for the

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loss of property and life and provision of incentives to encourage local communities to live with wildlife. This study focused on accessing the effectiveness of the methods used to manage HWC between mostly the big cats and the locality community living in Kitengela wildlife dispersal area. The big cats here mean large carnivores and they particularly include lions (*Panthera leo*), leopard (*Panthera pardus*) and cheetah (*Acinonyx jubatus*). These species have been listed by the Kenya wildlife service (KWS) as most endangered species in Kenya. Spotted hyena (*Crucuta crucuta*) is also included because is common in the area and very notorious in invading homesteads at night.

Although Kitengela area has teemed with many species of wild herbivores which cause destruction to crops, they are not considered as much a threat to people's livelihoods as are the carnivores. It is not uncommon to see large herds of herbivores mixed with livestock grazing together in the same land. Wild herbivores commonly seen include plains zebras, wildebeests, coke's hartebeests, Thomson's gazelle, Impala, giraffe and warthog among many others. This is, however, not without several negative effects to livestock. Even though the local pastoralist community reported that wild herbivores infect livestock with diseases and parasites, especially ticks, they did not have as much reservation on them as they did carnivores. It is on this backdrop that the study concentrated on wild carnivores and sought to determine whether the methods used to manage the conflict have borne fruit. The study also sought to find out the challenges that hinder the success of the methods in question.

MATERIALS AND METHODS

This study was carried out in Oloosirkon location Kitengela division and Nairobi National Park (NNP). The carnivores that cause conflict in this area are believed to come from

NNP which border Kitengela wildlife dispersal area to the south. Kitengela division is found in Kajiado county, Kenya and is situated between longitudes 36° 5' and 37° 5' east and between latitudes 1° 0' and 3° 5'South (Gichohi, 2003). The area lies in the Athi-Kipiti plains, which consists mostly of open rolling land and covers approximately 390 km² (Nkedianye *et al.*, 2009). Annual rainfall ranges from 500mm to 800mm spread across two rainy seasons: March-May and October-December. NNP is only 8 km south of Nairobi city centre. It covers an area of 117 km² and situated 2° 18' south and 36° 50' east (Figure 1).

This study took the descriptive research approach where a variable or set of variables were measured as they existed naturally without influencing them. (Mugenda & Mugenda, 2008) considers descriptive studies as being logically easier and simpler to conduct besides providing the foundation upon which other studies can be done. Data on the various HWC management strategies employed in the Kitengela area was collected using self-administered questionnaire since the local community is largely composed of people without formal education. A sample size of 105 people who were selected using simple random sampling was used to get the required information. Focused group discussions and observation were additional methods used to collect data. Data from NNP was collected by interviewing two key informants directly responsible for managing HWC by use of semi-structured interviews schedule. These were purposively sampled and two days were spent to interview them.

Qualitative data from the focused group discussion and interview was analysed using both conceptual and relational content analysis methods after it was coded. Data collected using observation method was analysed by arranging it into emerging trends. Quantitative data from generated by questionnaire was analysed using percentages.

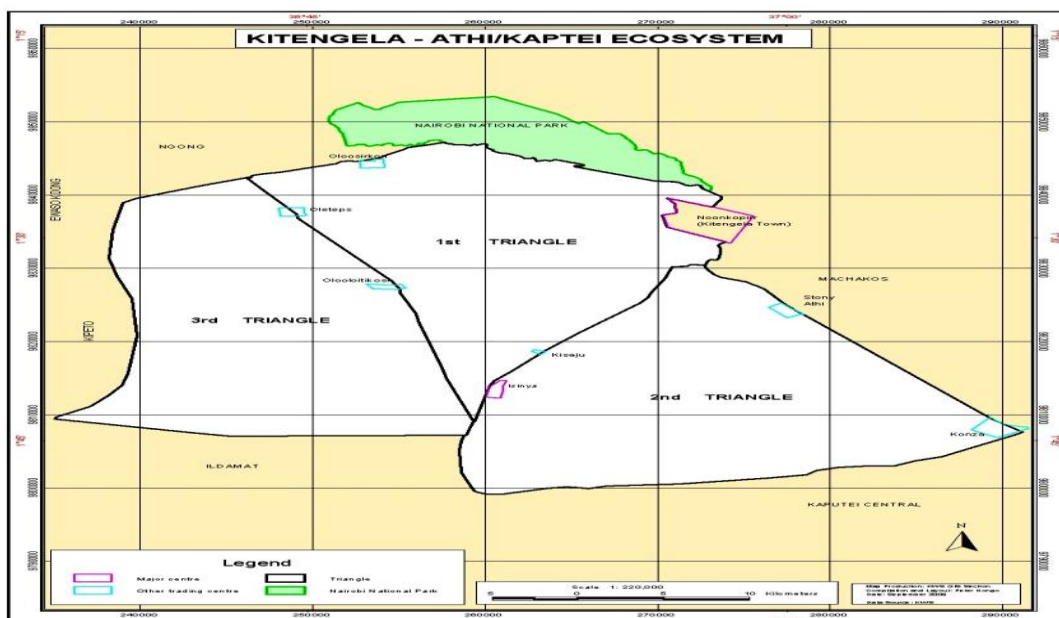


Figure 1. Map of Nairobi National Park and Kitengela dispersal area.

RESULTS AND DISCUSSION

The effectiveness of dogs in reducing livestock predation: Livestock guarding dogs have been used to protect livestock against predation in many parts of the world including Namibia, Europe, USA and Canada (Rigg, 2004). The study found out that 100% (n=105) of the respondents kept local breeds of dogs. Observation by the researcher also corroborated the results obtained above and noted that different homesteads kept varying number of dogs. Majority of the respondents at 95.2% (n=105) said that although dogs could not resist big cats like leopards and lions, they were very useful in alerting people of the presence of a predator. These findings corroborate those of (Ogada *et al.*, 2003). Dogs bark and help make people aware of an impending invasion and come out to turn the predators away. This probably explains why every homestead kept dogs. However, on a closer interview whether dogs were helpful in preventing predation, it was noted that dogs will always take off from a homestead when either a lion or leopard invaded. This was always the case when people failed to respond quickly to the dogs' distress calls (barking). Leopards are also known to predate upon dogs hence cannot resist an attack by the leopards. It was observed that 100% of dogs in the area were of the local breeds which lacked in most of the qualities of effective livestock guarding dogs (LGDs). According to (Green & Woodruff, 1990), LGD should be able to stay with livestock full time and aggressively repel predator. During the study period interrogations and observation established that this was rarely the case. When asked why people did not keep those exotic Livestock Guiding Dogs like the Germany shepherd, most people (59%, n=105) said they would not survive there. Some people argued that those dogs were less and not as aggressive as the local breeds. Some people still said that these dogs were much more expensive to buy and take care of as compared to the local breeds. These dogs were also considered more ineffective than local dogs in guarding livestock according to 28.6% of the respondents who described them as being lazy.

Fencing of Nairobi National Park: Fencing of protected areas has been seen has the most effective method of protecting biodiversity (Richmond, 2006) and (Walpole, 2003). However, the idea of confining wildlife within a given area is likely to cause debate among ecologists even though it would significantly reduce cases of HWC. Kristjanson, (2002) carried out a study in Kitengela and observed that this approach may not be sufficient in protecting biodiversity especially if used alone. Indeed there cannot be a single approach for all solutions. There is the need for a combination of approaches. Generally, most of the national parks in Kenya are fenced around by use of electric fences. Observation established that Nairobi National Park is fenced on three sides and only the southern boundary marked by Mbagathi River is open. The fenced sides do not experience any conflict as the interview with one of the KWS staff established. This is the reason which makes many people prefer the complete fencing of the park. Most of the respondents at 58.1% were of the opinion

that NNP should be completely fenced off in order to prevent wild animals from leaving the park to Kitengela area. The problem animals are believed to emanate from this park that is found 8 kilometers south of Nairobi city centre. The southern part of the park is not fenced hence animals can move into and out of the park into the Kitengela area. The fact that they were not allowed to graze their livestock in the park especially during the dry people when they are desperate for water and pasture made them think that the park did not benefit them at all. This comes in the backdrop of their land supporting the large population of wild herbivores which roam and freely mix with livestock at Kitengela dispersal area and the larger Athi-Kipiti plains. There could be no consequences of fencing the park according to 42.9% (n=105) of the respondents. However, 36.2% thought that fencing the park could lead to them losing the opportunity to graze their livestock during the dry spell. As they confided with me, during dry seasons, they sneaked into the park at night to graze and water their livestock.

Those who disagreed with fencing of the park agree with most ecologists and conservationists that it is too small to be fenced. The park is only 177 km² which might not provide all the ecological requirements for wildlife if fenced. An interview with park staff established that fencing the side bordering Kitengela could spell doom for most animals, herbivores and carnivores alike. Wildebeests, for instance, are known to the calf at a place called Isinya in Kitengela. At the same time, most herbivores leave the park for Kitengela to avoid predators during the wet season when grass grows tall. This is because herbivores graze in areas where they can keep an eye against predators. Tall grass can hamper their visibility around the pasture area hence the reason for leaving the park. On the other hand, the park is too small to provide ecological requirements of most carnivores. Lions are known to be territorial animals and hence require large space which they get at Kitengela area. Kitengela has always been a wildlife dispersal area and a migratory route to and from Amboseli national park. These functions have, however, been blocked because of the extensive sub-division of land, fencing and human settlements in the area.

Fencing around homestead: The use chain-link fence around homesteads and bomas (corrals) to securely protect livestock against predation is a common practice with the pastoral Maasai community as found out with the Tanzanian Maasai community (Packer *et al.*, 2011). Fencing around homesteads and bomas was a common occurrence across the study area (Figure 2). People maintained a variety of fences which were mostly used in combination. A proportion of 67.6% (n=105) of respondents had barbed wire fence and a similar percentage had the chain-link fence. These proportions were equal probably because as it was observed chain-link fences were always reinforced with barbed wire fences. Compared with other fences, chain-link fence was said to be the most useful in reducing predation. This is probably the reason why it was commonly observed in the study area with 69.53% (n=105) thinking that it was effective in controlling

predation. When predators attacked at night, livestock got scared, caused a stampede and scampered into the bush became even more exposed to predation. The fence, however, restricted their movement and this reduced the rate of predator and death of livestock. Although some predators like the leopard and lion could occasionally jump over the fence, livestock made alarm calls and help could come before much harm is caused. Ogada *et al.* (2003) found out that the rate of depredation decreased when livestock was kept in well-secured corrals. However, 85.7 (n=105) of the respondents believed that it was expensive

to erect the chain-link fence. Sutton (undated) estimated the cost of fortification (erecting chain-link fence) to be \$863.15 per a boma. Besides, erecting this fence required one to have a particular predator in mind. Those predators capable of burrowing like the hyenas required a fence with some of the wire mesh reaching into the underground. Leopards on the other hand, required a fence closed all round due to their ability to climb over fences. Since lions can jump over 9 foot high fence, fencing against them, required fences higher than 9 feet. This complicated the matter.



Figure 2 . This chain-link fence was under construction during study period.

Compensation programmes: Compensation refers to the payment made by wildlife authorities and other stakeholders to victims of wildlife damage or their kin in case of death. Livestock compensation can be an effective tool for minimising the impacts wildlife causes to people. It can also help reduce the negative consequences of HWC (Nyhus *et al.*, 2005). People usually attack wildlife because of the pain of losing livestock and consequently their livelihoods as a result of invasion by wildlife. Rodriguez (2006) recommends compensation as one way that can increase people's tolerance towards wildlife while minimising the financial losses incurred by communities. In Kenya, the government has been offering up to Ksh. 15,000 for human injury and Ksh. 30,000 for human death which was considered too little and a favour of wildlife over local communities (Obunde *et al.*, 2005). Interrogation with community members established that this was only in papers as only very few people if any has been compensated for losing livestock to predation. The Wildlife Conservation and Management Act revised the compensation policy and raised the figures to not more than Ksh. 1,000,000 for human injury or death Kenya Gazette Supplement 2013. This still has got to be put into practice by the time of conducting this research and community members accused KWS of frustrating efforts to compensate them.

The study found out that majority of the respondents (94.3%, n=105) had had their livestock killed by carnivores at one time or another. However, 69.5% said that they were never compensated. Out of the total number of respondents who had in one time or another been compensated, 21.9% said that compensation delayed. Only 8.6% agreed that they had been compensated promptly. By the time this research was conducted, the system of compensating locals had been stopped due to claims of abuse by claimants and some KWS officials, according to the interview with one of the NGOs staff working in the area and located within the park. The passing of the Wildlife Conservation and Management Act 2013 promises better compensation terms. It was therefore hoped that it would help reduce the conflict. If properly carried out, (Nyhus *et al.*, 2005) note that compensation can help to reduce the negative consequences of HWC, increase tolerance of local people towards wildlife, raise awareness and lead to conservation education. However, bureaucracy in the government sector remains a serious challenge to effective compensation programmes. Compensation depends largely on the availability of funds and government budget priority areas. Kenya is currently struggling with large external debts which factor is likely to negatively affect the implementation of the compensation policy.

CONCLUSION

Even though the conflict management examined helped to some extent in managing HWC at Kitengela area, they each had their own unique challenges. The local breeds of dogs would not successfully be used as livestock guarding dogs because largely carnivores were involved in this conflict. The exotic breeds did not survive in the area, although not much is known on how much they would help in managing the conflict. Even though as observed every homestead kept dogs, there were several cases of invasion and killing of livestock by carnivores. Those who propose the fencing of the only remaining open southern part of the park are not conscious of the wildlife ecological requirements. Any functional wildlife habitat must of necessity provide four categories of the basic requirement. These include food, water, shelter and space. Complete fencing of the park would spell doom to its sustainability. On the hand fencing of around homesteads and bomas is not only very expensive to the local community but also not completely effective in controlling predation. Those respondents with chain-link around their bomas still reported cases of carnivore attack. Compensation seems appealing to community members but unappealing to the government. It had been tried before but reportedly abused by some KWS officials in collusion with local community members. Kenya has accumulated huge external debt and the government seems to be channeling most of its funds towards repaying the loans. It is therefore fair to conclude based on the foregoing discussion that the HWC management strategies examined were not fully effecting in addressing the conflict at Kitengela. It is therefore recommended that all stakeholders in conservation be brought together in charting the way forward as far as managing HWC is concerned. The local community should be supported to erect chain-link fences around bomas more cheaply and seek alternative sources for compensation funds. In fact, the government should adopt an elaborate compensation scheme.

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REFERENCES

Dickman, A.J. (2009). Key determinants of conflict between people and wildlife, particularly large carnivores, around Ruaha National Park, Tanzania. *Oxford Press*, 110-126.

- Gichohi, H.W. (2003). Direct payments as a mechanism for conserving important wildlife corridor links between Nairobi National Park and its wider ecosystem: The Wildlife Conservation Lease Program. *Vth World Parks Congress, Sustainable Finance Stream*, 32-39.
- Green, J.S., & Woodruff, R.A. (1990). Livestock guarding dogs: protecting sheep from predators. *Agriculture information Bulletin*, 12, 44 - 49.
- Kissui, B. (2008). Livestock predation by lions, leopards, spotted hyenas, and their vulnerability to retaliatory killing in the Maasai steppe, Tanzania. *Animal Conservation*, 11(5), 422-432.
- Kristjanson, P. (2002). Valuing alternative land-use options in the Kitengela wildlife dispersal area of Kenya. *Assesment Series*, 10, 1-61.
- Mugenda, O., & Mugenda, A.G. (2008) Research Methods: Quantitative and Qualitative Approaches: Nairobi. African Centre for Technology Studies. *Open Acces Library Journal*, 2(2), 7-14.
- Nkedianye, D., Radeny, M., Kristjanson, P., & Herrero, M. (2009). Assessing returns to land and changing livelihood strategies in Kitengela. *Staying Maasai*, 115-149.
- Nyhus, P. J., Osofsky, S. A., Ferraro, P., Madden, F., & Fischer, H. (2005). Bearing the costs of human-wildlife conflict: the challenges of compensation schemes. *Conservation Biology Series Cambridge*, 9, 107.
- Obunde, P., Omiti, J., & Sirengo, A.N. (2005). Policy dimensions in human-wildlife conflicts in Kenya: Evidence from Laikipia and Nyandarua Districts: Institute of Policy Analysis and Research, 1-49.
- Ogada, M.O., Woodroffe, R., Oguge, N.O., & Frank, L. G. (2003). Limiting depredation by African carnivores: the role of livestock husbandry. *Conservation Biology*, 17(6), 1521-1530.
- Packer, C., Brink, H., Kissui, B., Maliti, H., Kushnir, H., & Caro, T. (2011). Effects of trophy hunting on lion and leopard populations in Tanzania. *Conservation Biology*, 25(1), 142-153.
- Richmond-Coggan, L. (2006). Assessing Wildlife Distribution and Population Trends in the Greater Mara Ecosystem, Kenya: the synergistic effects of landscapes and threats. Durrell Institute of Conservation and Ecology, University of Kent, 1-91.
- Rigg, R. (2004). The extent of predation on livestock by large carnivores in Slovakia and mitigating carnivore-human conflict using livestock guarding dogs. Aberdeen University. *Oryx*, 45(2), 272-280.
- Walpole, M.J. (2003). Wildlife and people. *Conflict and Conversation in Masaimara*, 1-4.