

Wildlife Snaring by the Local Community in Ruma National Park, Kenya: Can Conservation Tourism be an Alternative Livelihood Strategy?

George Ariya

University of Eldoret

Department of Tourism and Tour Operations Management

Abstract

The study was conducted at Ruma National Park within Lambwe Valley and looked at snaring of wildlife by the local community. The key objectives were to establish the level of wildlife utilization by the locals; the types and sources of wildlife snaring materials; the de-snaring activities undertaken within the park and the possible viability of conservation tourism development as an alternative livelihood strategy. The study adopted the survey design through structured questionnaires to collect information from the local community. Simple random technique was used to select the respondents who comprised the households living adjacent to the park. The data collected was subjected to descriptive and inferential tests. The study established that majority of the local community carry out snaring. Snares were sourced from vandalism and from locals working in sugar companies. The snaring materials ranged from galvanized steel and copper sourced from telephone lines, aerial supporters of telephone and electricity posts, cranes, park fence and sisal plantations for sisal ropes. Different snares targeted different wild animal species. Snaring activities were high at the beginning of the year and mid-year around August to October. Tourism activities within and around the park were dismal. The study concludes that the region has high tourism potential and development of conservation tourism in the area could abate current snaring of wildlife by the local communities.

Keywords: Wildlife snaring, local community, conservation tourism, livelihood strategy

Introduction

Wildlife conservation in Kenya confronts persistent, complex and possibly overwhelming socio-economic and ecological problems (Akama, 1993). One of the major concerns is the rampant snaring of wildlife by the local communities living around the protected areas in Kenya especially during dry seasons when food sources are relatively scarce (Akama, 2003; Munagai, 2004). It is believed that after charcoal burning, the trade is the most successful *jua kali* business in Kenya (Mungai, 2004). It is estimated that in total, 2 million metric tons of illegal bush meat is harvested each year in Africa with an estimated 300,000 tons consumed in Kenya (Mungai, 2004).

Hunting of wildlife for human consumption has been identified as both conservation and a human livelihoods issue (Bennett, Eves, Robinson and Wilkie, 2002; Brown, 2003; Milner- Gulland, Bennett and HSBC, 2003). It is a conservation issue because it can lead to population declines of target species (Bennett, 2000; Peres, 2000a; 2000b; Steadman and Stokes, 2002), to local extirpations (Peres, 2000b) and even to global extinctions (Olson and James, 1982; Holdaway and Jacomb, 2000; Oates *et al.*, 2000). It is also a human livelihoods issue because hunting results in the loss of wildlife resources for inhabitants of rain forests (Department for International Development, 2002).

Many of these forest- dwelling people are divorced from national economies and have little alternative source of protein and income (Robinson and Bennett, 2002). While in some regions, hunting of wildlife is legal, snaring of wildlife on the other hand is not legal. Snaring is the indiscriminate, illegal killing (except in self-defense) or capture of wild animals and marine life for subsistence or commercial purposes (Musili, 1993; Youth for Conservation (YfC), 2002). Snares are made of metal wires usually obtained from electric fences, old tires, telephone lines, thick winch cables, electric cables, nylon line or vegetable fibers and come in various sizes often determined by the size of the target animal (YfC, 2003a). They are non-selective and once set on a trail could catch any moving animal ranging from the small antelopes to big herbivores (East and Hofer, 1995; ADMAD, 2003). Some wildlife species are also killed by a hail of poisonous arrows (YfC, 2002).

Snaring activities in protected areas and wildlife dispersal areas in Kenya are done by some neighboring local communities while in other areas it is practiced by the non-indigenous tribes (YfC, 2002; YfC, 2003b). Moreover, snaring and bush meat trade has been found to escalate in areas with very high levels of poverty (YfC, 2003b). In some instances, it is believed that wild animals being snared cause havoc in local farms and are killed to reduce agricultural damage (World Bank, 2003; YfC, 2003b). Furthermore, how to address the bush meat crisis in Africa remains elusive. There are those that argue that the only way to save wildlife species is to stop illegal hunting (Peterson, 2003) but in many contexts, prohibiting illegal hunting for wild meat will be institutionally difficult, prohibitively expensive and can be challenged on ethical grounds (Adams and McShane 1992; Ostrom *et al.*, 1999). There are also those that argue that 'the only hope for breaking the destructive patterns of resource use is to reduce rural poverty and improve income levels, nutrition, health care and education' (Brandon and Wells, 1992). With a human population of about 40 million (Kenya Demographic and Health survey (KDHS) 2008-09) and a projection of an increase to about 65 million by 2030 (KNBS and ICF Macro, 2010), compounded with significant rise in poverty as well as a cashless society, there is a notable tendency of wildlife to provide a cheap source of protein (Bernett, 2000). This dependency poses potential threat to Kenya's wildlife population. For community wildlife conservation to succeed, integration of the local population is paramount (Infield, 1988; Balakrishnan and Ndhlovu, 1992; Bonner, 1993; Omondi, 1995). The success of wildlife conservation depends on the support of the local communities living adjacent to the park (UNEP, 1988; Colchester, 1994). Ruma National Park (RNP) is the only park of its kind in Nyanza province and is well known due to Rothschild giraffe and roan antelope with the latter occurring nowhere else in Kenya.

Local community surrounding the park has heavily relied on wildlife meat for domestic consumption possibly due to abject poverty in this society thus leaving them with no alternative but bush meat consumption for their survival. Moreover, cattle's keeping has not been a viable source of livelihood in the area due to Tsetse fly infestation in the Lambwe Valley. Goat and sheep keeping are therefore major options, but are also killed by the predators like leopards and hyenas. Baboons, monkeys and other invaders destroy small-scale crops available while lone buffalos chased from the herd within the park move in buffer zones and cause danger to the local community. The locals are forced to stop using the footpaths close to the park through Nyatoto gate by early evening due to wildlife attacks.

On the contrary, the park officials have made many threats and several arrests as a strategy to reduce snaring in and around the park. However, this attempt has been perceived by the locals as exercising more value for wild animals at their own expense. It is against this background that the study explored an integrated wildlife conservation and alternative livelihood strategy through conservation tourism to the local community around RNP.

Research Methodology

The study was conducted in Ruma National Park within Lambwe Valley in Homa-Bay County, Kenya using the survey research design. Locations covered during the study were Kodunba, Nyatoto/Lambwe, and Nyakiya/Nyadenda. These areas were chosen based on their proximity to the dense human settlement, cases of snaring, and wild animal water points. The sites were therefore expected to give more representative information on the snaring activity in the region. Questionnaires were disseminated by the researcher to all the homesteads in the selected areas one kilometer (1km) away from the park. Only the household head and one person per family unit filled in the structured questionnaires. Where the heads were not available, their wives filled in the questionnaires. Filling in the questionnaires was conducted at family unit homesteads and where the respondents did not understand English, the researcher translated the questions in native Luo language making a total of ninety six respondents.

The secondary data was also obtained from Kenya Wildlife Service (KWS) Occurrence Book Record (OBS) at RNP KWS office to establish the number of snares and trend as well as the number of poachers' arrests. There were also structured interviews with the four park rangers conducting security patrols within the national park as well as in helping classify the already collected heap of snares from the park.

Results and Discussions

Characteristics of the Respondents

A total of ninety six respondents; male (85%) and female (15%) participated in the study. Out of this number, 90.2% were indigenous community members and only 9.8% were non-residents. The mean age of the respondents was 41.88 ± 10.23 while the mean household was 7.87 ± 3.52 . The majority of the respondents (93.4%) were Luos followed by Kisii's (4.9%) and Teso (1.6%) respectively. Most of the respondents (88.5%) were married and 11.5% were widowed/widowers. Majority of respondents reached primary level of education (45.9%) followed by illiterates (36.1%) then secondary (16.4%) and very few (1.6%) reached tertiary level of education (Figure 1).

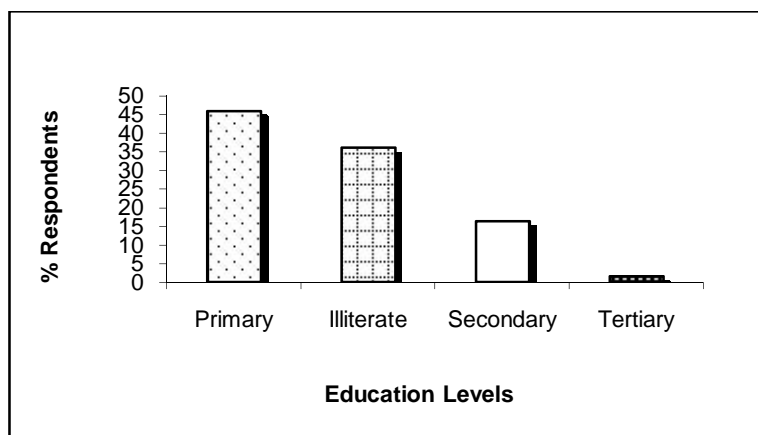


Figure 1: Education Levels among Respondents around Ruma National Park

The respondents engaged in different economic activities (Figure 2), with most (86.9%) engaged in farming, while a few (6.6%) and (4.9%) were in business and civil service respectively. Very few (1.6%) engaged in *bodaboda* (bicycle transport business).

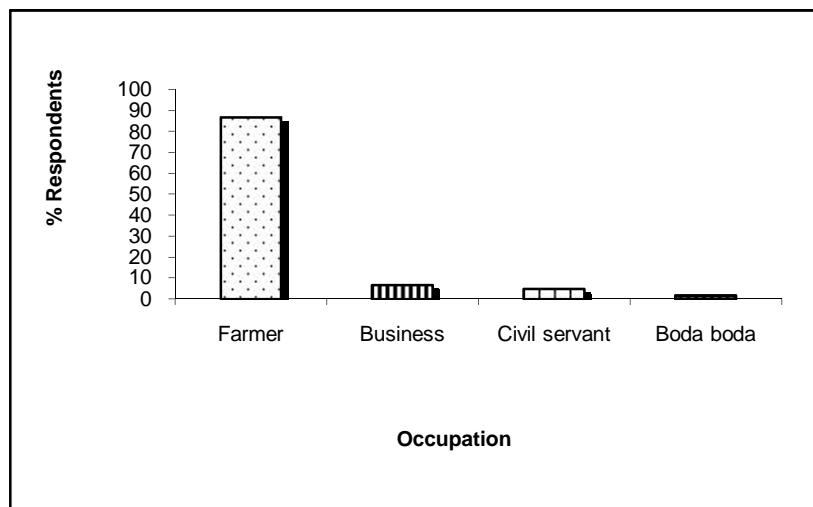


Figure 2: Occupation among the Respondents around Ruma National Park

Wildlife Utilization

Among the respondents in the study, 75% admitted to have eaten bush meat from wild animals. 54.1% consumed wild pig and 19.7% consumed roan antelope. Bush meat was majorly obtained through hunting (44.3%) and purchasing (36.1%). Majority of the respondents consumed bush meat either weekly (62.3%), monthly (6.6%) and very few respondents consumed daily (4.9%). There was a significant relationship ($\chi^2=52.115$, $df=3$, $p=0.001$) on the frequency of bush meat consumption among the respondents. Many respondents consumed bush meat in January (Table 1) and very little bush meat was consumed around May, June, July, September and November.

Table 1: The Seasonal Trend in Bush Meat Consumption by the Respondents

Months	Jan	Feb	Mar	April	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Yes	73.8	57.4	57.4	50.8	3.3	6.6	8.2	47.5	50.8	8.2	4.9	4.9
No	26.2	42.6	42.6	49.2	96.7	93.4	91.8	52.5	49.2	91.8	95.1	95.1
χ^2	13.787	1.328	1.328	0.016	-	-	-	0.148	0.016	-	-	-
p	0.001*	NS	NS	NS	-	-	-	NS	NS	-	-	-

*Significant; NS-Non significant; -Negligible percentages

The research revealed that most locals highly consumed bush meat at the beginning of the year. There is low consumption towards the middle of the year and during the end of the year (Table 1). It is possible that harvesting seasons influence the consumption patterns. In the area of study, during the month of January, most families have consumed all the harvested food and resort to trapping wild animals in order to supplement their diet. This is justified by the argument by Hatch (1982) that “hunted meat is important in rural nutrition because of its role as a continuous supplement to livestock production, and as a ‘buffer’ for maintaining dietary quality should other crops be inadequate”.

Many respondents argued that after the wild animals have destroyed their crops and killed their domestic animals, they are left with nothing in their fields. Subsequently, they are obliged to ensnare wild animals as a source of food for their family members. Studies elsewhere has shown that the state of poverty among many local communities living around and near the park has led to illegal activities like snaring wild animals and logging within the park as an alternative source for their livelihood (Bennett, 2000; Pflanz, 2005). Drought, which is rampant in these regions, has cut cattle stocks and forced beef prices to go up especially in regions where incomes are extremely low (Pflanz, 2005).

Moreover, January demands high fees for school and college children and bush meat is considered an alternative source of income for many locals to meet this demand. Consequently, the illegal hunters snare wild animals in the park, dry the bush meat in the sun, and then supply the dry bush meat (what is known as *Alia* in native Luo language). Park rangers interviewed revealed that bush meat is supplied to small hotels in Mbita, Sori, Ndiwa, and Homa-Bay and Isbania on Kenya-Tanzania border. This is justified by the arrests of the locals already made in Homa-Bay and Mbita transporting bags of dry bush meat using bicycles to these centres. It was also established that those supplying bush meat locally target only close friends and relatives who cannot reveal their secret illegal activity to the general public. The prime wire suppliers, used for designing snares, are in most cases rewarded by dry bush meat after the exercise is accomplished. They might also be using the locals as means to reach wild animals in the park, supply them with meat which they later trade elsewhere. This can explain the reason why some of the arrested and charged suspects especially in Suba District can be able to raise the court charges as high as Kshs. 5,000.00 (52 USD).

Tsetse fly infestation within the Lambwe Valley has also impeded livestock keeping over the years. The valley is considered one of the earliest foci for human sleeping sickness in East Africa, and widespread animal *trypanosomosis*, both spread by tsetse flies (Reid *et al.*, 2003). There are also dismal crop yields within the region since farming is rain-fed from bimodal rains. The land in the region was once characterized as high potential (Ayiemba, 1986), but respondents complain that the soil is not very fertile anymore, probably due to poor terracing (Connelly, 1994) and possibly due to lack of awareness and high costs of fertilizer or manure. This could contribute to abject poverty amongst the local community making bush meat a must be alternative supplement of their diet.

Sources of Snaring Materials and the Wild Animals Targeted Most by Illegal Hunters

Different types of snares were used by illegal hunters ranging from ropes, electric fences, telephone lines, thick winch cables, and electric cables. The snaring materials were purchased (34.4%), made locally (31.1%), and/or obtained by vandalising the existing structures (55.7%) (Figure 3). Majority of snares, therefore, were obtained from vandalism ($\chi^2=5.918$, $df=1$, $p=0.015$). Snaring in the park mainly targeted roan antelopes (54.1%), giraffe (59%), and buffaloes (65.6%).

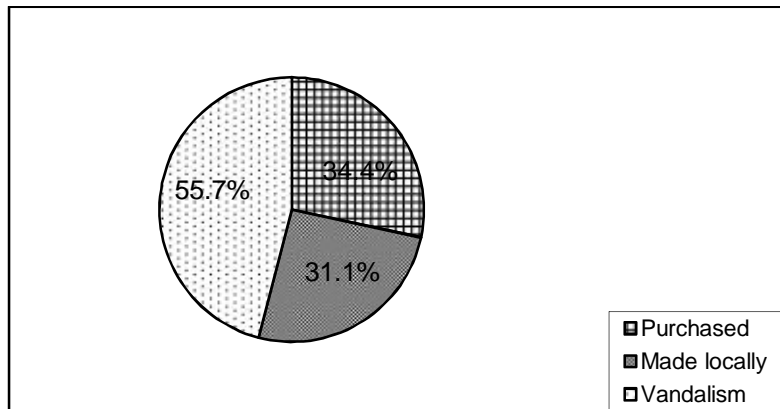


Figure 3: Pie Chart Showing Percentages of Various Sources of Snares Used for Hunting

The study showed that sources of snares varied from vandalism, purchases and locally made (Figure 3). Majority of the local community vandalise the park fence and telephone wires along the road from Mirogi to the park headquarters. Snaring materials ranged from galvanized steel (thin and thick), sisal ropes, barbed wire (with and without thorns), and copper (especially from telephone wires). These materials were classified to be possibly from aerial supporters, cranes/winch (18 coiled steel wires), wires supporting chain link in fencing especially wire netting (1 wire), hand brakes in vehicles, support of telephone posts (7 rolled wire), barbed wire for fencing (Photo 1) and possibly sisal plantations for sisal ropes.

Research done elsewhere revealed “telephone-wire traps at the borders of Tsavo National Park, on a well-known game trail linking the east and west halves of the park” (Pflanz, 2005) were vandalized in order to make snaring materials. During their desnaring campaign in Tsavo National Park, Youth for Conservation (2003b) also classified snares to be made of metal wires usually obtained from electric fences, old tires, telephone lines, thick winch cables, electric cables, nylon line or vegetable fibers and come in various sizes often determined by the size of the target animal.



Photo 1: Heap of Snares Already Collected from the Park and Destroyed by KWS Staff (Photo by Researcher)

According to the KWS occurrence book records, the patrol team has been carrying out desnaring activities over the years and a total of 1591 snares have been collected from the park. The major collections were done during the month of January, March, and April (Figure 4) indicating a closer relationship with seasons of high bush meat consumption (Table 1).

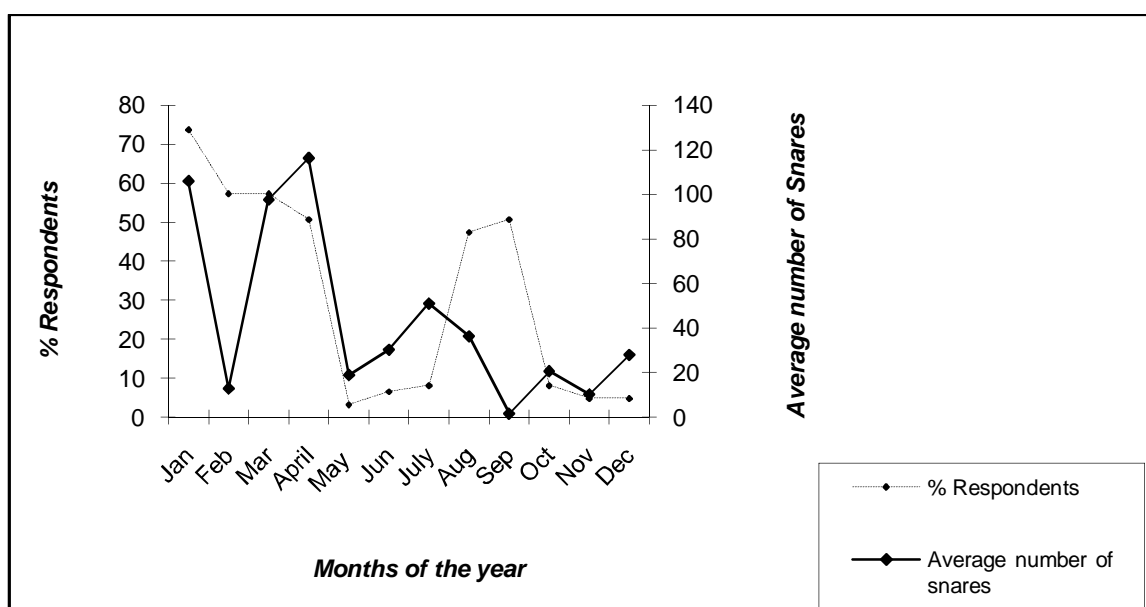


Figure 4: Triangulation Graph Showing the Relationship between the Average Numbers of Snares Collected and the Seasonality Trend of Bush Meat Consumption by the Locals

The classification of the already collected snare materials at the park headquarter revealed that they were majorly galvanized steel (both thick and thin), barbed wire, copper and sisal ropes (Table 2).

Table 2: Analysis of Already Collected Snares from KWS Stores

Snare	Target Animal Species	Target Animal Body Size	Classification of Snare Material	Remarks
1	Buffalo/Waterbuck	Big	Coiled steel (thick)	Aerial supporters/cranes/winch (18 coiled wires)
2	Impala	Medium	Sisal ropes	Made in form of a net
3	H-beast/ Buffalo/ Topi/ Water buck	Big and medium	Barbed wire	With hooks used to prick and kill
4	Buffalo	Big	Steel	Wire supporting chain link in fencing/ electric fence and wire netting (1 wire)
5	Buffalo/ Roan antelope	Big/Medium	Copper	Telephone wires
6	Giraffe/ Roan antelope	Big/medium	Galvanised steel (thin)	Used for hand brakes in vehicles and cranes in factories
7	Buffalos	Big	Galvanised steel (thick)	Used to support telephone posts (7 rolled wires)
8	Giraffes/ Topi/ Jackson's heart beast	Big/medium	Galvanised steel (thin coiled)	Cranes in factories
9	Roan antelope	Medium	Barbed wire without thorns	Barbed wire for fencing
10	Giraffe/ Roan antelope	Big/medium	Galvanised steel	Thin coiled wires used in vehicle brakes (2 wires)

Snares targeted various animals ranging from Buffaloes, Rothschild giraffes, Roan antelopes, Topi, Jackson's heart beast, Waterbuck and the Impalas according to KWS categorization from already collected snares (Table 2).

The survey to the local community revealed that the major wild animals targeted are Buffaloes, Rothschild giraffe and the Roan antelopes. Majority of the respondents argued that the big wild animals yield a lot of bush meat. Thus, one catch could sustain them for long without returning to the park. This reduces the risk of trespass in to the park and hence being caught or arrested. Roan antelope's meat was termed as '*very sweet*' and liked by the local community. In Zambia for example, tens of thousands of wire snares are used by the villagers as a method for killing wild animals and this causes long suffering and cruel deaths to hundreds of animals killed annually in the country (ADMADE, 2003).

Due to the nature and design of snaring nooses, some wild animals probably not targeted by the locals are trapped (Photo 2). Research has shown that snares are non-selective and once set on a trail, they could catch any moving animal ranging from the small antelopes to big herbivores as depicted on a study done in Serengeti National Park, which showed that snares also caught non-target wild animals like hyenas and lions (East and Hofer, 1995).



Photo 2: A Snare Set along Animal Path (Photo by Researcher)

It was further revealed that some locals who work at Sony Sugar Company usually supply hunters with winch and crane wires used for making the snares. This concurs with desnaring activity done in this region by Youth for Conservation, which revealed that "some snares had identical marks which supposedly implied that they belonged to an individual. This finding leads to the suspicion of the presence of a source for supply or hire of snares" (YfC, 2003a).

Arrests and Wildlife Law Enforcement

According to KWS occurrence book records, a number of arrests have also been made with offences ranging from possession of bush meat, snares and live quails, logging and vegetation destruction, burning charcoal within the park, hunting and grazing within the park. Many local communities committing illegal snaring and bush meat trade have been arrested and arraigned in court with different offences ranging from hunting with spears and dogs, possession of bush meat, vandalising the park fences, possession of snares among other offences as per the KWS occurrence book records. Under normal circumstances, such people should be fined for different but related offences ranging from vandalism, trespass to the park and of course possession of bush meat or illegal weapons used to annihilate wild animals. However, the records of cases already presented and charged in court raised concerns and warrant further investigation to expose whether there was apathy from law enforcers or some of the law enforcers involved in cover up or support the beneficiaries of illegal poaching especially in Homa-Bay District. This might justify the sentiments of Giles (1978) who argued that wildlife laws enforcement context is made hazy by other law enforcement works and by the courts.

According to the available records, a suspect found in possession of duiker meat is fined Kshs 1,000.00 (10 USD). When the suspect failed to raise the amount, he was released and charged with community service in a local primary school in the district. Another suspect was found in possession of 17 snares in Suba District and charged Kshs 5,000.00 (52 USD) or six months imprisonment.

In another incidence, two suspects were found in possession of 10m plain snares and were charged Kshs 700.00 (7 USD) each and in a later incident three suspects with bush meat (giraffe, buffalo, and water buck) were charged Kshs 500.00 (5 USD). These incidences occurred in Homa-Bay district and all suspects paid the charges.

On the contrary, in Suba District (adjacent district), two suspects were found hunting with dogs and spears and were fined Kshs 4,500.00 (46 USD). They could not raise the amount and later jailed for three months. In summary, virtually no illegal hunter had been jailed in Homa-Bay District. The suspects after being warranted minimal charges come back to the community and revenge by intensifying snaring activities. Elsewhere Pflanz (2005) while explaining a hunter found in possession of 110 lbs of illegal meat in Tsavo National Park in Kenya argues that this person could be jailed for 10 years.

Conclusion

Ruma National Park is currently facing rampant snaring of wildlife especially the endangered roan antelopes within the park for domestic and commercial purposes. There are limited tourism activities taking place in and around Ruma National Park despite the potential of the area. Moreover, there seems to be general neglect of tourism development in western circuit and Nyanza province as a whole yet Ruma National Park is the only park of its kind in this province. There is a need for balancing wildlife conservation policies with the development need of the local people in this region for sustainable wildlife conservation and community development. Due to dwindling crop production, low livestock numbers, low fish stock, rudimental fishing equipment and adverse changes in climatic conditions of the area, conservation tourism development could be an alternative source of livelihood to the locals around the park. There is high potential for tourism development which is currently untapped and further research will shade light on how such resources can be developed as touristic attractions without compromising the environment.

References

- Adams, N. S. and McShane, T. O. (1992). *The myth of wild Africa: conservation without illusion*. New York: W. W. Norton.
- ADMADE (2003). *Snaring report*. www.armade.com.
- Akama, J. S. (1992). *Wildlife Conservation in Kenya: A political- Ecological Analysis of Nairobi and Tsavo Regions*. Nairobi: Kenya.
- Akama, J.S. (2003). *Wildlife Conservation in Tsavo: An Analysis of Problems and Policy Alternatives*. East African Natural Resources Management Journal.1: 1-97.
- Ayiemba, Dr. Elias H O (1986) (ed). "South Nyanza District Socio Cultural Profile." A joint research and Training project of the ministry of planning and national development and the Institute of Africa Studies. University of Nairobi: Kenya
- Balakrishnan, M. and Ndhlovu, D. E. (1992). *Wildlife Utilization and Local People: A Case Study in Upper Lupad Game Management Area, Zambia*. Environmental Conservation 19(2): 135-144.
- Barnett, R. (2000). *Food for Thought-The Utilization of Meat in Eastern and Southern Africa*. TRAFFIC East/Southern Africa. Nairobi: Kenya.
- Bennett, E. L. (2000). Timber certification – where is the voice of the biologist? Conservation Biology 14: 921–923.
- Bennett, E., Eves, H., Robinson, J. and Wilkie, D. (2002). Why is eating bushmeat a biodiversity crisis. Conservation Practice 3: 28–29.
- Bonner, E. (1993). *At the Hand of Man: Peril and Hope for Africa's Wildlife*. Alfred A. Knopf. New York: USA.
- Brandon, K. E. and Wells, M. (1992). Planning for people and parks: design dilemmas. World Dev. 20: 557–570.
- Brown, D. (2003). Is the best the enemy of the good? Livelihoods perspectives on bushmeat harvesting and trade – some issues and challenges. Paper submitted to the CIFOR-Bonn Conference on Rural Livelihoods, Forests and Biodiversity.
- Colchester, M. (1994). *Salvaging Nature: Indigenous People, Protected Areas and Biodiversity Conservation*. UNRISD. Geneva: Switzerland.
- Conelly, W. T. (1994). Population pressure, labor availability, and agricultural disintensification: The decline of farming on Rusinga Island, Kenya. Human Ecology Volume 22, Number 2 June pages 145 - 170
- Department for International Development (DFID) (2002). *Wildlife and poverty study*. London: Wildlife Advisory Group, Rural Livelihoods Department, DFID.

- East, F and Hofer, H. (1995). Poaching in the Serengeti Ecosystem. (unpublished).
- Giles, R.H. (1978). Wildlife Management. Freeman and Company. San Francisco: USA.
- Government of Kenya.(1994). Development Plan, 1994-8. Government Press. Nairobi: Kenya.
- Hatch, T. (1982). Shifting Cultivation in Sarawak-A Review Soils Division (Research Branch), Department of Agriculture, Sarawak, Kuching.
- Holdaway, R. N. and Jacomb, C. (2000). Rapid extinction of the moas (Aves: Dinornithiformes): model, test and implications. *Science* 28: 2250–2254.
- Infield, M. (1988). Hunting, trapping and fishing in villages within and on the periphery of the Korup National Park. Report to World Wide Fund for Nature. Gland, Switzerland: WWF.
- KNBS and ICF Macro.(2010). Kenya Demographic and Health Survey 2008- 09. Calverton, Maryland: Kenya National Bureau of Statistics and ICF Macro.
- Milner-Gulland, E. J., Bennett, E. L. and the SCB (2002). Annual Meeting Wild Meat Group (2003). Wild meat – the bigger picture. *Trends Ecology Evolution* 18: 351–357.
- Mungai, N. (2004). Thriving Bush Meat Trade Threatens to Deplete Kenya's Tourism Resource. Nation Centre. Nairobi: Kenya.
- Musili, N. D. (1993). Wildlife Conservation and Tourism in Kenya. Jacaranda Designs. Nairobi: Kenya.
- Oates, J. F., Abedi-Lartey, M., McGraw, W. S., Struhsaker, T. T. and Whitesides, G. H. (2000). Extinction of a West African colobus monkey. *Conservation Biology* 14: 1526–1532.
- Olson, S. L. and James, H. F. (1982). Fossil birds from the Hawaiian Islands: evidence for wholesale extinction by man before western contact. *Science* 217: 633–635.
- Omondi, P. (1995). Tourism and Wildlife- Human Conflict Resolution in Kenya's Maasai Mara Region. Seminar Paper.
- Ostrom, E., Burger, J., Field, C. B., Norgaard, R. B. and Policansky, D. (1999). Revisiting the commons: local lessons, global challenges. *Science* 284: 278–282.
- Pflanz, M. (2005). Bush Meat Choking Butchers. Nation Centre. Nairobi: Kenya.
- Peres, C. A. (2000a). Effects of subsistence hunting on vertebrate community structure in Amazonian forests. *Conservation Biology* 14: 240– 253.
- Peres, C. A. (2000b). Evaluating the impact and sustainability of subsistence hunting at multiple Amazonian forest sites. In *Hunting for sustainability in tropical forests*: 31–56. Robinson, J. G. and Bennett, E. L. (Eds). New York: Columbia University Press.
- Peterson, D. (2003). Eating apes. Berkeley, CA: University of California Press
- Reid R. S., G. W. Muriuki, T. J. Njoka (2003). Tsetse, Wildlife and Land-cover Change in Ruma National Park, South-western Kenya. *Journal of Human Ecology*. 14(4): 229-235
- Robinson, J. G. and Bennett, E. L. (2000a). Carrying capacity limits to sustainable hunting in tropical forests. In *Hunting for sustainability in tropical forests*: 13–30. Robinson, J. G. and Bennett, E. L. (Eds). New York: Columbia University Press.
- Steadman, D. W. and Stokes, A. V. (2002). Changing exploitation of terrestrial vertebrates during the past 3000 years on Tobago, West Indies. *Human Ecology* 30: 339–367.
- United Nations Environmental Program (UNEP).(1988). People, Parks and Wildlife. Guidelines for Public Participation in Wildlife Conservation. Case Studies in Kenya. Nairobi: Kenya.
- World Bank (2003). Hunting of Wildlife in Tropical Forests-Implications for Biodiversity and Forest Peoples. www.worldbank.org.
- Youth for Conservation.(2002). Maasai Mara Desnaring Project Report.(Unpublished report).
- Youth for Conservation.(2003a). Bush Meat Crisis in Kenya.(Unpublished report).
- Youth for Conservation.(2003b). Kasigau Desnaring Project Report.(Unpublished report).