

HUMAN-WILDLIFE INTERACTIONS

SIMANJIRO PHOTOVOICE PROJECT



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August, 2012

Acknowledgment

I am very grateful to the Centre of Collaborative Conservation (CCC); *Warner College of Natural Resources*; Colorado State University, for awarding me this research funding.

I am also, grateful to the International Ford Foundation for awarding me the scholarship to undertake my studies at Colorado State University.

To my advisors Dr. Gillian Bowser, Dr. Randal Boone, as well as my committee members Dr. Bret Bruyere and Dr. George Wittemyer, for your helpful advice, encouragement and constructive criticism.

Thank you, photovoice and interview participants and village leaders from Simanjiro community, for your voluntary participation and devoting your time on the project. Without your participations, this project would not have taken place.

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1. INTRODUCTION

The establishment of Yellowstone National Park in 1872 motivated the effort to establish national parks and preserves all over the world; however, little regard was given to the Maasai pastoralists of Tanzania and Kenya who lived near the proposed parks and had lived in harmony with wildlife for many years (Deihl, 1985). The designation of a park makes the utilization of once shared resources inside the park illegal for local people (Baird *et al.*, 2009), but wildlife still follow seasonal migration patterns to the community land, and they continue to share resources with human beings and their livestock. About 70% of East African wildlife populations overlap with pastoralists when they disperse outside protected areas to the community land (Western and Gichohi 1993; H.Sachadina, 2006).

According to Conover (2002), human wildlife conflict happens when an action by humans or wildlife has a negative effect upon the other. Human wildlife conflict has persisted from generation to generation. Every year these conflicts continue to grow. Most local people surrounding protected areas start to feel that wildlife is given more priority by governments than community properties. As a result, human, livestock, and wildlife fight over the common shared resources like water, grazing land, and habitats.

Despite many studies conducted on human and natural resource interaction, few of these studies have considered local community perceptions on the matter, despite the fact that these perceptions are central to all factors. This has resulted in the failure of many conservation programs, which were initiated based on demographic and economic factors and which ignored local opinion (Baird *et al.*, 2009).

In this study, we investigate the cross-cultural perspectives from local people on two migratory herbivores from two national parks: wildebeests (*Connochaetes taurinus*) from Tarangire National Park to understand whether perspectives and land use changes have any major influence on park management views.

1.1 Problem

Human-wildlife conflicts (HWC) greatly impact both humans and wildlife. According to Conover (2002), when humans and wildlife interact, both parties lose. Farmers suffer economically from the loss of crops and livestock; in worse situations, people are injured or killed (WWF SARPO, 2005). Wildlife populations may suffer a decline due to direct killings, loss of habitat, and they may face migration or extinction as result of their conflicts with human populations (WWF SARPO, 2005). Since protected areas are part of large ecosystems, the activities such as land use changes in unprotected area has impact on ecosystem function inside the protected area (Hansen and DeFries 2007). Land use changes pose another challenge for migratory populations, because most protected areas do not possess both dry and wet season resources needed by wild animals (Homewood *et al.*, 2001; Voeten *et al.*, 2009); they migrate to search for these resources. Rapid increases in land use changes prevent animals from reaching these potential areas (Boone, 2007). Degradation at either end of the migratory cycle can lead to a decline in migratory ungulates (Ottichilo, De Leeuw & Prins, 2001; Voeten *et al.*, 2009). Wildebeests (*Connochaetes taurinus*) and zebra (*Equus burchelli*) migration from the Tarangire to Simanjiro plain has decreased in the past two decade due to cultivation (Kahurananga and Silkiliwasha 1997, Boone et all 2006).

Objective of the study

The primary objective of this proposal is to determine local people perspectives on migratory wildebeest, their knowledge about human-wildlife conflicts, and their involvement on national park management issues. Knowing people's attitudes and the reason for their attitudes might enable conservatism and policy makers to influence their behavior (Manfredo, 2008).

We explore the following questions through two methods: direct household interviews and photovoice technique. The findings from this study will be compared with the findings from a similar study done by Kate Wilkins at Great Sand Dunes National Park and Preserve. The aim is to determine cross-cultural views on wildlife conservation so that these communities and national parks can share and learn from each other. These studies questions were;

1. How do local people benefit from wildlife and national parks?
2. What are the resources shared among migratory animals (wildebeest/elk) humans and livestock?
3. What are the existing conflicts between human and migratory animals in the two study areas?

Research hypotheses

For the purpose of this study, HWC is defined as damage to property and human lives (Manfredo et al. 2008). Here are the study's hypotheses;

1. The relationship between local people's perspectives on migratory species and wildlife-related problems and benefits has common roots across cultures.
2. Land use changes are the main cause of human-wildlife conflicts.
3. Local people who benefit from conservation will have positive attitudes towards migratory animals.

2. LOCAL PEOPLE'S PERSPECTIVES

2.1 Introduction

In recent decades, conflict in the developing countries between wildlife conservation objectives and local livelihood practices has severely threatened the sustainability of each enterprise (Cernea and Schmidt-Soltav, 2006 and Baird *et al.*, .2009). These concerns are increasingly relevant in East Africa along the eastern border of Tarangire National Park in northern Tanzania (Baird *et al.* 2009). While the Park protects important dry-season water resources, the Simanjiro plains, which lie outside the eastern border of the park, provide critical grazing and calving areas for thousands of wildebeest (*Connochaetes taurinus*) and zebra (*Equus burchelli*) that migrate to find lush, nutrient-rich forage during the wet season (Baird et al. 2009).

Holmes (2003) studied the influence of community services provided by protected areas on the local people's attitudes. He found that individual and community perspectives are influenced by the degree of interaction between protected areas and local community. Outreach services like schools and hospitals provided by protected areas make local people tolerate wildlife-related problems. A recent study conducted by Baird et al. (2009) on the local perceptions of risk and behavior response in eight villages in the eastern part of Tarangire National Park indicated that people closer to the national parks are at a higher risk for wildlife-related problems than those who are living far from the parks.

2.1.1 Human-wildebeest conflicts

The Simanjiro plains are important for grazing and calving for migratory wild animals like wildebeest (*Connochaetes taurinus*), zebra (*Equus burchelli*) and elephant (*Loxodonta Africana*) during wet season (Borner 1985; Sachedina, 2006). These migratory animals come into contact with farms and eat crops which result in conflicts with farmers. At the same time, predators that follow migrating herds out of park boundaries encounter cattle that are easy to catch (Meyer, 2008).

Malignant Catarrhal Fever (MCF) is a disease lethal to cattle (Nelson et al, 2009). It is transmitted from wildebeest to cattle following the wildebeest calving period (Bedelian et al., 2006) and since there is no vaccine, pastoralists must separate their cattle and wildebeest during the infectious period. However, participants reported reduced mortality due to MCF, apparently due to declining numbers of wildlife calving in the plains (Sachedina et al. 2009)

Human development is also growing fast in the Simanjiro district with more development near the park, particularly by the Maasai who are shifting more towards agricultural than pastoralist lifestyles. These human activities cause environmental degradation, corridor blockage, and habitat fragmentation. All of these threaten wildlife (Meyer, 2008). Wildebeests (*Connochaetes taurinus*) and zebra (*Equus burchelli*) migration from the Tarangire to the Simanjiro plain decreased in past two decade due to cultivation (Kahurananga and Silkiliwasha 1997, Boone et all 2006). According to the TAWIRI May 2001 aerial survey report for Tarangire ecosystem wildebeest population has decline from 1988 to 2001 from 43,437 to 5,257 (see Appendix 3 and 4). The major challenge facing conservation is how to incorporate wildlife conservation policies and wellbeing of people living with wildlife, (Galvin et all 2006) since currently most Maasai don't recognize the direct benefits from wildlife conservation (Galvin 2009,Lynn 2011).

2.2 Methods

2.2.1 Tarangire National Park

Tarangire National Park was established in 1970. It is located between 3°40'S and 4°35'S latitude and 35°50'E and 36°20' E longitude at an elevation of between 1200 and 1600 meters above sea level. Tarangire National Park occupies an area of 2,860km², making it the fifth largest park in Tanzania. It lies 118km southwest of Arusha within the administrative districts of Babati, Simanjiro and Kiteto in Manyara region and Monduli district in Arusha region and Kondo district in Dodoma region (TANAPA, 2002). See Appendix 1

Tarangire is situated on a wooded steppe in the arid acacia savannah belt that is dominated by acacia and commiphora species (TANAPA, 2002). The Tarangire-Manyara Ecosystem, which encompasses 35,000km², boasts the second largest migration of large ungulates in East Africa after the Serengeti-Mara ecosystem and one of the largest on the planet (Lamprey 1964; Kahurananga 1981; Baird et al. 2009).

Wildebeest of Tarangire National Park migrate to open areas of the Simanjiro Plains during the wet season between December and May of each year for grazing and breeding purposes (Borner 1985; Sachedina, 2006). Land use changes in these wildlife wet season refuge lands prevent animals from reaching these potential areas (Boone, 2007). Since this is an open-access area outside protected areas, the wildebeests come into conflict with agro-pastoralists and pastoralists whose livelihood activities are in conflict with wild herbivores. Conflicts grow day to day as human populations increase, resulting in habitat destruction, land fragmentation, and blocked wildlife corridors. These situations have created an urgent need to involve all stakeholders in natural resource conservation efforts through collaborative learning and consensus decision-making processes.

This project was conducted in three villages (Emboreet, Terrat and Narakauwo) located in the Simanjiro district in Manyara region, Tanzania (See appendix 1 for further villages information). These villages are located in the famous wild animals' dispersal area, the Simanjiro plains. According to different literature, reasons behind wildebeest movement during the wet season between December and May are for breeding purposes, to avoid predator for their vulnerable calves (Borner 1985; Hassan Sachedina, 2006) and to access mineral and green forage (Jarman and Sinclair 1979, Boone 2006). However, cultivation expansion in Maasai pastoral lands raises conservation and economic concerns (Bobbs et al. 2007, Thonton et al. 2007).

Household interviews and photovoice technique are two methods that were used to collect data for this study.

2.2.2 Interview

We conducted In-depth interviews with respondents from a wide range of backgrounds at these three villages neighboring Tarangire National Park. We used a purposive sampling method to select research participants for the study. This was done by requesting village leaders to recommend villagers both women and men who are engaged in different economic activities to participate in interviews. The survey questions were open-ended, giving participants room to share their views without boundaries.

The initial interviews provided key insight for the interactions between the community, wildlife and the parks, as well as more information on other potential interviewees within the communities. Interviews took a maximum of 60 minutes. Household interviews at Tarangire were conducted from December 2011-January 2012. A total of 60 households were interviewed at the Simanjiro plains, where by 20 participants from each of the three villages were interviewed.

2.2.3 Photovoice

Photovoice is a participatory research approach where participants photograph their daily life and discuss what those photos represent (Kenney, 2009; Green and Kloos, 2009) based on their community concern (Liamputtong, 2010) and needs for the future as seen through their eyes (Beh, 2010). Photovoice is a technique that has been used in the health sciences and community economic status perceptions (Wang, 1999; Jurkowski 2007). However, the application of Photovoice to wildlife issues is more recent (Beh, 2010). According to Wang and Burris (1997) photovoice has three aims: 1) to enable people to record and reflect on their community's strengths and concerns, 2) to promote critical dialogue and knowledge about important issues through large and small group discussion of photographs, and 3) to reach policy makers.

The strength of Photovoice method is that it enables participants to present their expertise about their daily lives (Wang & Burris, 1997). Photovoice technique was used in this project, where community members were provided with digital cameras to take pictures of their interactions with wildlife and to document benefits they receive by living closer to the national park and in wildlife dispersal area. The photo owners were then asked to select their top 3 to 5 photographs to present in the discussion session. Photovoice participants also had the

opportunity to meet with the Tarangire National Park management. The meeting enables participants to explain their own photos to park management which open the lines of communication between the communities and the park. Also, the meeting provided the park management with a more in-depth view of existing human-wildlife issues.

2.3 Results

2.3.1 Interview

Overview

From December 17, 2011 to January 12, 2012 we interviewed a total of 60 participants to learn more about their perspectives on and interactions with migratory animals', particularly wildebeest. These household interviews were conducted in three villages, Emboreet, Narakauwo and Terrat. The villages are located within wildlife dispersal areas of the Simanjiro Plain by Tarangire National Park's eastern border. We asked twenty participants from each village to voluntarily participate in this study. Each interview lasted between 20-60 minutes and consisted of about 20 open-ended questions (Appendix 4)

After transcribing and analyzing the interviews, several themes were generated based on how frequently the issue was mentioned in the discussion and interesting events that participants use most of the time talking about them (Beh,2010). The themes that frequently came up were disease, crop raiding, conflict with the Tarangire National Park for not compensate for the loss caused by wild animals, resource sharing among wild animals, domestic animals, and people, and the fear that park is going to expand its boundary.

Findings

For Narakauwo village there were 9 female and 11 male participants with an age range from 20-60 years. About 70% of participants were from Narakauwo, 30% from neighboring villages where most (85%) of them were Maasai, and 15% Warangi, Waarusha and Iraqw. All participants acknowledged knowing of wildebeest that migrate to the village as soon as the rainy season begins. They identified the wildebeest as polite, but asserted the claims that they cause diseases which cause cows to become blind and die. This disease is caused by a virus from wildebeest placentas that are left in areas where wildebeest breed malignant catarrhal fever. The virus is transmitted to cattle when they graze in these breeding sites. To avoid this disease, herders take their cattle away from the wildebeest breeding site, as an adaptation strategy learned from their fathers or other family members. The participants acknowledged that it is challenging to continue practicing this adaptive strategy nowadays compared to the past years due to the increase in human population which result to increase in human activities. Also, the other challenge they faced when moving their cattle from plains into the forest or shrub lands is that they often encounter ticks and dangerous wild animals like buffalos and elephants.

About half of local people interviewed were aware of about the park and its responsibility while 35% of participants said they just heard about the park but had never been there, and 25% don't know about the park at all. Also, about half responded that there is a negative relationship between the park and the village. The negative relationship was based on the loss and threat local people faced from wildlife, but they do not receive any assistance or compensation from the park. Pasture and water were mentioned as the main shared resources among livestock, people and wildlife. Participants identified disease crop raiding and the conflict between villagers and the park as the existing human-wildlife conflicts in their community. Farming was identified as the activity that is mostly affected by wild animals because local people do not know how to prevent wild animals from coming to the farm, compared to disease caused by wildebeest where people adapted with the strategy of taking their cattle away.

Participants recommend the following to reduce human-wildlife conflicts: Government compensation to people whose properties have been destroyed by wild animals, support from Tarangire National Park to chase away destructive animals when villagers report to the park, or that the park should keep wild animals from coming onto village land and that the park should reduce or kill destructive animals. They also encourage tourism activities through capacity building, and maintain that the village government should receive money generated through

photographs and hunting activities that take place in their villages. These tourism activities might help people become more tolerant to the wild animals. Most participants (70%) believe that land use changes accounts for the increase in human wildlife conflicts. Participants believe increase in the human population increases conflicts between people and wild animals because people demand land for cultivation which is not compatible with wild animals.

At Emboreet village there were 8 female and 12 male participants with an age range from 22-60 years. 85% participant were from Emboreet, 15% from neighboring villages and Ngorongoro who moved to Emboreet in order to engage in agriculture activities that are not allowed in Ngorongoro. Most of them are Maasai who are agro-pastoralists.

All participants were familiar with wildebeest, and most of them categorized them as polite animals because they do not destruct farms except when they are together with zebra and cross in the farm. However, wildebeests were identified as the enemy of cattle, because they can transmit deadly disease to the cows. Some participants also mentioned that wildebeest eat the young leaves of the maize plant. About 65% of Emboreet acknowledged knowing about Tarangire National Park; however, some confused the park with a private campsite, Kikoti that borders the park and the village. They also could not identify whether the park or this private campsite provided funding for their village development projects. Most participants use the word 'mpaka' (meaning boundary) when they were referring to the park. The reason for this is that everybody in the community was told that there is park boundary where they are strictly to enter or take their cattle. According to participants, there are benefits that the village receives from wild animals including support from Tarangire National Park and the Kikoti campsite. Both stakeholders help fund village development projects, such as building classrooms, Emboreet secondary school laboratory, and a village office. Also, Emboreet village receives some revenue from photographic activity, as well as from lending village land to the Kikoti campsite. Women also receive certain amount of money to run small businesses (e.g. selling vegetable and open small shop).

Human wildlife conflicts issues that came up frequently during interview are wildebeests transmit disease to cows, shortage of shared resources (such as water) between wild animals (mainly wildebeest and zebra) and cattle. Others are carnivores (lions and hyena) attack people and cattle and crop raid by wildebeest and zebra. Another major issue that seems to disturb local people is that they are worried that the park might be in the process of expanding its boundary, which is the reason that local people worry about researchers that seems to support

park and wild animals more than people. Half of Emboreet participants agreed that an increase in human populations causes an increase in conflicts amongst people, as well as between people practicing agriculture and wildlife. The reason is that the area for grazing seems to decrease year by year due to agriculture practices done by local people and people from Arusha who lend large farms to local people.

Participants recommended that Tarangire National Park should prevent wild animals from entering the village or should protect local people farms during wet season. They also want more research to be done on treatments for the disease transmitted from wildebeest to cows. Moreover, they advised the government to send a representative who can assess the destruction caused by wild animals as soon as people report an incident, so that people can be compensated. Some participants also recommended their fellow villagers to create a fence around their farms to prevent some of the wild animals from invading and eating crops, as well as reducing their farm size to increase grazing land for their cattle.

There were 10 female and 10 male participants at Terrat village with an age range from 20-70 years. 65% were from Terrat, 35% migrated from neighboring villages, and 90% are Maasai who act as agriculture and livestock keepers.

Overall, 65% of participants' views on wildlife were positive towards wildlife with the reason that animals are God's creatures and are therefore good while others identified them as bad, dangerous, and destructive. All participants responded that they know wildebeest and that wildebeest migrate to the village during wet season, and leave when the rain stops. Wildebeest were identified as dangerous animals to cattle because of the disease they cause. Overall, 65% participants are aware of Tarangire National Park and its responsibility of protecting wild animals while 30% heard about the park but only knew they were not allowed to cross park boundary.

Based on the knowledge about the relationship between the park and village, 45% did not know if there was a relationship, 30% said there is good relationship because the park supports village development projects, like building classroom for primary school and beds for secondary school, and 25% said the relationship is bad because the park staff do not listen or help when villagers have problems with wild animals. Also, 55% do not recognize the benefits from tourism activities and wildlife because they incur more costs from wild animals through raiding farms and spreading diseases than the small benefits received. Women stated that the small benefits received usually go to the men. 40% cited benefits, such as revenue from a

photographic company called CRT, as well as support from Tarangire that included new classrooms, beds for the girls' dormitory, and wild meat supply.

Participants also mentioned several human wildlife conflicts that exist in their community. These included diseases, such as malignant catarrhal fever transmitted from wildebeest to cows, rabies passed from carnivores to dogs and people, crop raiding, and carnivores attacking cattle and sometimes people. The participants also mentioned hunting permits issued by District officers but no one following up on them. Since hunters do not show their hunting permit or report their kills to the village, it is difficult for the village game scouts to inspect the animals that have been hunted or if the permit is still valid. Most participants were also worried that park might expand its boundary and take their land. Lastly, Terrat participants highlighted that the park provides more support to the villages that are very close to the park boundary and ignores villages that are further away that have more interactions with migratory animals.

Terrat Village's participants recommended that collaborative conservation between the park and village should be given top priority for the benefit of both migratory animals and pastoralists. Government or parks should compensate for property destroyed by wild animals, or prevent animals from entering villagers' property and that the village should be able to administer hunting permits to avoid illegal hunting, or that hunters should report to the village office before hunting. They also suggested that some of the money generated from hunting activities should be given to the village, to strengthen the government's anti-poaching department since there are many poachers during wet season who are coming from Arusha. They also supported the recommendation for more research and suggestions on how to reduce conflicts between humans and wildlife to be done. Another recommendation was that Government subsidized vaccinations for cattle and the park should allow villagers to graze cattle in the park during the drought years, since wild animals overgraze their pastures.

2.3.2 Photovoice

This Simanjiro Photovoice project was done in July 2011(dry season), December 17, 2011, and concluded on January 12, 2012 (wet season). We started by introducing the project and its objective to the Emboreet ward leaders. Village leaders were requested to assist researchers by informing people about the project and that their participation in the project is voluntary.

Twelve photographers from each of the three villages, giving a total of 36 photographers, were given digital camera and were asked to take photo of their interaction with wildlife. Village

leaders organized the meeting for those who were interested about this research. We introduced the objective of the project and Photovoice technique. Then 12 villagers who were willing to participate in the project were purposely selected to represent targeted groups; women and elders. They were then given consent forms to sign before starting the training on the use of the camera.

The Photovoice process usually includes 3 steps; participants come together to discuss the process, participants take individual photographs, and participants bring photographs to a focus group meeting of all Photovoice participants for discussion (Wang et al 2004,Christine,2010). We organized two-day training. The first day we conducted training on how to handle and use the camera to take photos for one hour in each three villages. Then for the rest of the day participants practiced how to handle the camera and take photos. The second day meeting was to review what participants learned from the first day and assess the individual photos taken from day one for improvements.

Participants were asked to

- Take photos of their interaction with wild animals, particularly wildebeest
- Explain what their photo is about based on the pro and cons of interaction
- Provide recommendations of what should be done to improve the situation.

On the discussion day, photographers were asked to select their best photo and give explanations of what that photo represented and their recommendations for the situation. The chosen photos were displayed on a laptop to enable other participants to see it and contribute. The discussion started with the photographer giving explanations of where the photo was taken, what it was about, and his/her recommendations. Then, other members were given a chance to contribute or ask questions.

The discussions were recorded by digital voice recorder then later transcribed. The Photovoice discussions from summer 2011 were transcribed to generate the themes from each village. These themes were generated based on the how frequently the issue was mentioned and discussed in details by photographers. These themes were then presented to the village in the winter 2011 phase so that the photographers could take photos based on these themes.

Findings

Diseases: This was the main wildlife concern for local people of the study area. Malignant Catarrhal Fever (MCF) is a disease transmitted from wildebeest to cattle following the wildebeest calving period. Since this disease has no treatment pastoralists usually have to move their cattle to a separate area to avoid the transmission.

Cost of treating cattle: Participants elaborated that they are incurring high costs for treating their cattle because of the interaction with wild animals. They have to treat their cattle more than three times every month to avoid tick bone diseases.

Isack took this photo showing cow treated in “joshu” (dip- tank or trough to kill parasites in cattle). He identified ticks as a vector of transmitting diseases among animals. He said it is very important to wash/treat their cattle so as to avoid ticks transmitted diseases and that these “joshu” must contain a precise amount of medicine to avoid overdose or under-dose cattle since excess treatment might kill cattle. He added that not only ticks but also tsetse flies and snakes cannot bite or attack cattle that have been washed with this treatment because if they



bite these cattle they die instantly.

Photo 1: Cow washed in treatment water at ‘Joshu’.
Photo courtesy of Isack

According to local people’s experience in this area, it is recommended to wash cattle two or three times per month and for each cow they pay Tsh 100/=.

Isack added: *This picture has relationship with wild animals in the sense that if ticks from wild animals have “ndigana kali” (east coast fever) and then bite cattle, they transmit this disease to cattle.*

Isack recommend for research to be done on zoonotic disease, and the village should get feedback from research findings so that strategies could be taken for future actions.

Photo 2 shows a hori (manmade drinking areas/canal for cattle) that most domesticated animals use to drink water. Isack's concern was that it is very important to make sure that before pouring water in for cattle, the hori should be clean since it is sometimes used by wild animals.



Photo 2: Cattle drinking water in the "hori". Photo courtesy of Isack

Isack: If you do not clean this hori, it is likely for domestic animals to get transmitted diseases from wild animals.

Isack elaborated that the advantage of treatment to prevent their cattle from getting disease from wild animals. However, it seems that the community has limited access to these treatments and local people cannot afford it. Because of his interest on the project Isack met with ward veterinary doctor to discuss the issue of zoonotic diseases. They acknowledged research on these diseases as the way forward for future efforts. Also, during the discussion photographers express how their experiences on living with these wild animals make them resilient and innovative on how to deal with different situations.

Josephina: *This picture (photo 3) represents the interaction between domestic animals and wild animals. As you can see in the picture, the cows and wildebeest are grazing together. I took this picture to show there are times when cattle can mix with wild animals but there are other times, particularly during wildebeest breeding season, when cows can get diseases by grazing in areas where wildebeest give birth. This disease usually results in the death of the cow, since this disease has no cure.*



Photo 3: wildebeest and livestock grazing together

Since we don't receive any assistance from the government on treatment of this disease, I recommend for government to find a way that can be separated wildebeest from cattle to prevent this loss we are getting.

Josephine's concern was that in certain seasons of the year, livestock and wild animals can graze together and it is okay for livestock keepers, except during wildebeest breeding season whereby they need to separate domestic and wild animals. Local people from this area expect to receive some assistantship like treatment from the government, but since they do not receive any they feel like it is time for the government to start finding the way to prevent wild animals from the national park to come to their community land. Despite all these challenges, some photographers insisted that local people continue practicing their local adaptive strategy of separating cattle from wildebeest during breeding season. This shows how tolerant they can be with wild animals.

Here is what Isack said: *since this disease has been persistent in our community for a long time, we have adapted a ways of separating our cattle from wildebeest during the wildebeest breeding season. So, I recommend pastoralists to take their cattle far away from wildebeest breeding sites to avoid this disease. Also, we have to be careful with flowing water that might carry those viruses.*

Ndoika: *This is the photo of a joshho. This is an important facility for pastoralists; however we are lacking enough water to operate this treatment area. So, if we receive any means of getting assistance of water supply and medicine it would be helpful.*



Photo 4: A livestock treatment place (Joshho)

Isack: *We are also lacking good infrastructure for our joshho. We need taps to take water to this joshho. Another major challenge is treatments, in past years we used to get assistance from World Vision. Currently, individual local businessmen are the ones who operate it. Since we have only two joshho for the whole Terrat ward, about 3,000 cattle have to be washed per day and we have to treat them two times per month depending on treatment availability.*

Saidi: *We need veterinary doctors to do this work since these local businessmen who operate it currently are not livestock experts and this pose a threat to our cattle.*

Witness: *This cow (photo 5) is weak because it has a disease called ndigana (east coast fever). It has suffered for a long time, although it is recovering now after treatment. Before the treatment the animal could not even stand on its own.*

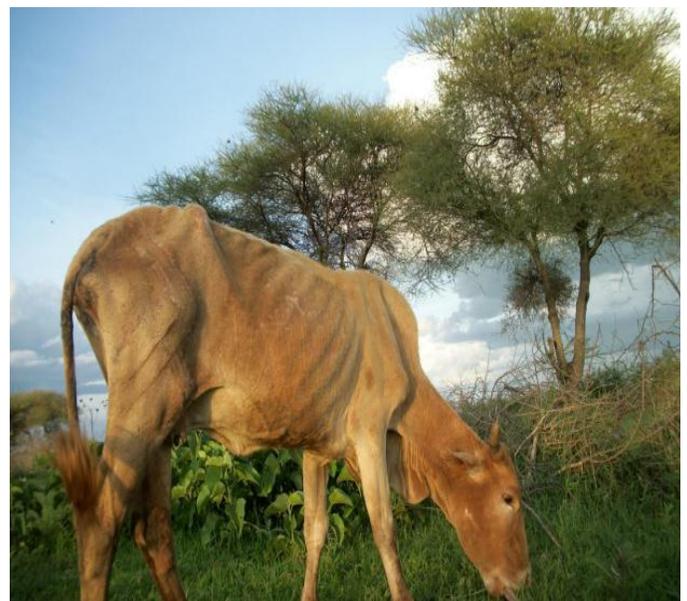


Photo 5: A photo showing cow with east coast fever

The relationship between this disease and wild animals is that, ndigana is caused by ticks that originate from wild animals.

Malipe: *As my fellow said wildebeest breeding site is very dangerous for cows since they get fever if they graze in that area. The first symptoms we usually see in cow's eyes and there is no treatment for it.*

When asked him what their former fathers' were doing to avoid these diseases Malipe said:

In past years our father used to take their cattle away from these wildebeest breeding areas and return when wildebeest are gone or when breeding



Photo 6: *Photo showing wildebeest at terrat. Picture by Malipe*

season is over. By then there were vast open areas but nowadays we cannot do that since every area is occupied and has owner with different human activities.

According to Malipe wildebeest breeding site is unsafe grazing area for their cattle due to this un-curable disease. And shifting their cattle like in past years is becoming challenge as time goes by due to increase in human population and their activities.

Joseph: *This picture (photo 7) shows a young boy taking cattle far away from wildebeest areas to avoid disease transmission from wildebeest. You can see wildebeest from far behind. From the beginning of this month of January you cannot predict when wildebeest will start breeding, though we know the highest breeding peak is from February-March. So to be on the safe side we try to prevent cattle from eating grass from areas where there are wildebeest.*

We are forced to take our cattle into wilderness areas where we have encounters with other challenges like dangerous wild animals, including buffalo, elephant and



Photo 7: *A boy takes cows away from wildebeest to prevent chances of the cattle contracting diseases*

lion. There are cases where buffalo killed cows; lions attack people and cattle and elephants kill people. Also, in these areas there are lots of ticks that cause diseases in cattle.

Joseph elaborated on their adaptation mechanism of separation cows and wildebeest. For them they feel okay to do this; however, they usually face challenges in these refuge areas. The issue of tick borne diseases and encounter with dangerous animals are critical in these areas, but they find it less risky than to allow cows to graze together with wildebeest.

Jackob: *I took these pictures that show how domestic animals interact with wild animals and share resources. These are wildebeest and zebra at terrat village area. In this interaction there are some disadvantages because domestic animals get treatment frequently but wild animals I'm not sure if they get any treatment. That is why they transmit disease to our cattle. However, sometimes cattle can also transmit diseases to wild animals through ticks and tsetse flies. Disease like anthrax is transmitted from either side when get in contact with affected animals.*



Photo 8: Top picture shows wildebeest at Terrat village.
Picture by Jackob

Jackob was explaining that there is a difference between wild animals and livestock - treatment. Livestock are treated to prevent them from diseases, which is not the case for wild animals, raising concern because they can transmit disease to livestock.

Recommendation

Jackob: *First we need improvement in medicine supply and treatment for the improvement of our cattle. Also I recommend for government to find a way of treat these wild animals like we do to our cattle. Without doing so this interaction brings threat to us. He continued saying that they have never got any medicine for treating this kind of disease as a result cow become blind and then dies. Jacob continue explain that when they slaughter infected cow they usually find swollen liver and dry intestine and inside intestine they find wildebeest fur. Lastly, he recommend if possible government should do research on wildebeest disease and treatment so that these animals could live together peacefully without any harm to each other.*

Shared resources: Water ponds, dams and grazing land are some of shared resources among people, cattle and wild animals. Participants at Narakauwo are worried about their health due to existing diseases between animals and people since they are both depending in only one source of water in the village that is dam.

Josephina: *I took this picture (photo 8) to show interactions among cows, children and wild animals. During this time when migratory herbivores are near settlements, the dangerous animals are also present, which is not safe for people. There were times when children were eaten by lions when herding in the pastureland.*



Photo 9: cattle grazing with zebra

Recommendation

Isack: *I recommend for government cooperate with local people to chase away these wild animals so as to rescue domestic animals and people. Sometimes local people decide to kill these animals for revenge, but I recommend for them to try chasing them away and killing should be the last option.*

Paulina: *This dam is the only permanent source of water we have in our village. All human beings, wild animals and livestock in the village use this water. This situation is not good health wise and also for peoples' safety. There are diseases that are transmitted between people and among domestic animals and wild animals.*

Also, we do not know how long this dam will last because its bank is now too shallow and not strong because there are some wild animals like



Photo 10: A photo showing a dam at Narakauwo. Photo courtesy for paulina

elephant and buffalo that destroy the dam banks.

Domestic animals and local people use it in the afternoon while wild animals at night and early morning. This situation is not good health wise because these animals urinate in it; some animals got diseases that can be transmitted among animals and even to people. Because of this sharing there are cases where people and cow were attacked by wild animals especially buffalos in this dam.

During drought years we had many cases of wild animals got stuck in mad in the dam, at one case 9 buffalos where stacked in the mad and we had to call Tarangire National Park for rescue



Photo 11: cattle drink water at Narakauwo dam. Photo courtesy for Leiyo

When asked if wildebeest also come to this dam Leiyo replied: Since this dam is surrounded by huge shrubs wildebeest usually don't come to this place. However, they are found in other open areas of the village and during rainy season they give birth in some areas of the village that are set aside for pasture where cases of cattle fever rise.

Recommendations

Paulina raised her community concern about their health situation since water from this dam is unsafe for them and their livestock. She recommended that separate sources of water be built for human use in order to ensure people's health and also advised for local people to separate their cattle with wildebeest during wet season. She also advised the government to use part of the revenue generated from wild animal activities to provide local communities with basic services like safe water and hospitals.

Malipe: *I took this picture (photo 11) to show how cows and wildebeest graze together. There is a time of the year when these animals live in harmony, except from February to May of each year where you will not find them grazing in the same area. Because of this people usually take their cattle to the wilderness in order to avoid a disease transmitted to the cow during wildebeest breeding time.*



Photo 12: A photo showing wildebeest and cow grazing together. Photo courtesy for Malipe.

Another loss caused by wildebeest is when they eat our crops. Wildebeest eat young maize leaves and because they are usually with zebra they also destroy other crops when crossing farms. Despite these losses we incur, there are no benefits that we see currently. So, I advise the government to think about this and support us.

Jackob: *Since we, as a village, have decided to live with these wild animals, the government should provide services like schools, hospitals and pay for our children's school fees so we can also feel the benefits of wild animals in our community.*

The main concern that was raised here was sharing benefits generated from the conservation of wild animals. The photographers felt that their community should benefit more from wild animals since they are the ones that incur loss of their properties through wildlife.

Abraham: *I took this picture (photo 12) to show that wildebeest and zebra graze on village lands, and although they are beautiful but sometimes they can be destructive. Zebra are worse because they eat the actual maize, while wildebeest eat only maize leaves when they are young.*



Photo 13: a photo showing wildebeest and zebra grazing at Terrat village

transmitted to cows while zebra were identified as most destructive on the farms.

Recommendations

Abraham recommended that the government find a way of preventing wild animals from destroying crops since when the village decided to take action on their own and kill the animals, the game ranger takes them to jail. He advised that wire fences should be constructed around national parks to prevent animal movement outside the park.

Isack: Since zebra skins are very expensive in Arusha, and can sell for about 900,000 Tanzania shillings (\$600), we advise the government to strengthen efforts to protect these wild animals. Some people at Emboreet village have bought vehicles for the sole purpose of poaching zebra's skin. They use silent guns to hunt these animals as well as certain chemicals that make skinning easy.

Isaya: There is also a need to have trained village game scouts with weapons since poachers have modern weapons. Our village game scouts don't have weapons to prevent poachers from hunting; they just use phones to call district game officers or Tarangire National Park rangers who usually take a long time to arrive in the area since they are far from here.

Lazaro: *This is example of private pond that most people in the village build. We have decided to contract these seasonal ponds for our livestock and sometimes for domestic uses. We reserve this water to use when the rain stops. However, sometimes wild animals come to drink in these ponds and leave diseases that can be transmitted to our cattle and sometimes destroy its banks. I recommend for assistance to plant trees around these ponds to prevent wild animals from coming into them.*



Photo 14: A photo showing a man fetching water from a private pond

One of the challenges that villages in the Simanjiro plains face is lack of permanent water sources. To deal with the situation, local people usually construct seasonal water ponds during the rainy season. Here, Lazaro explains that wild animals also use water from these ponds which increase the chances of people and their livestock to get diseases. Moreover, the wild animals also destroy the banks of the ponds since they randomly get into the ponds.

Nyerere: *This photo (photo 15) shows this area is important for wild animals. They migrate from Tarangire National Park to this area. When they are here they graze together with domestic animals. We do not mind when they share the grazing areas except after wildebeest begin breeding due to disease transmission. Also, during drought years we do suffer from shortages of pasture, but when we try to take our cattle near Tarangire they arrest us.*



Photo 15: A photo of cows and zebra grazing together at Narakauwo

Cecilia: *In the photo you see zebra; these are one of the most destructive wild animals in the farms. They eat a lot of maize.*

For Nyerere, people being arrested when they take their livestock near Tarangire National Park during drought years is a result of a lack of collaboration between villages and park. Nyerere is expecting since they allow wild animals to graze in their land the park should do the same particularly during drought years.

Maria: A picture shows area where we are searching for water for our cattle. Men dig in the sand to access water for our cattle, after our cattle drink water in the evening wild animals come at night to drink water too but by doing so they destroy the pond. Due to this situation we usually have some men (morani-maasai warriors) guarding the pond at night from animals like wildebeest, zebra, elephant and buffalo.



Photo 16: Maasai men dig on sand to create water pond for their livestock to get water. Picture by Maria Saruni

Development project: Participants acknowledged that they rarely receive support on development projects (dormitory, water pump) conservation stakeholders like Tarangire National Park and Kikoti tourist permanent campsite.

Isack: I took this picture to show a classroom that was built by Tanzania National Parks (TANAPA) in the year 2003. This shows one of the benefits we received by having these wild animals in our village community. These animals migrate to this area during the rainy season (December-February) and then return to Tarangire in August of each year when the rains stop. We are still thinking we receive very little benefit proportionally from the large benefits generated through conserving these wild animals. When we look at this building it reminds us of many things that we are supposed to have as a village.



Photo 17: A photo showing classroom built by TANAPA in 2003

We feel that this classroom is not the only thing that TANAPA can do for us compared to the efforts and sacrifice we are making to protect their animals. We have village game scouts whose school fees for their training was paid by Ujamaa Community Resource Trust. These village scouts make sure that wild animals are not

poached in village land. So we think, every two years TANAPA should at least build two classrooms or build a village office or provide food (lunch) in schools for students.

Currently, Terrat village receives 5 million Tanzanian shillings per year through Ujamaa Community Resource Trust (UCRT) of Dorobo, the company that deals with photographic tourism. Through this money they were able to build two classrooms at Lorosong'wani primary school. Other small village development projects also depend on this little revenue. The current balance in village account is 12,900,000 Tanzania shillings (\$8600) that was generated through fees charged to tourists who visit the village for photographic activities.

Recommendations

Isack: TANAPA has to show us that they exist. They must come and build a relationship with villagers that protect their wild animals.

Saidi: *This picture (photo 18) shows the kitchen at Lorosong'wani primary school at Terrat village. I decided to take this photo to show that in spite of having all these wild animals in our community, we do not have even a proper kitchen for our children. This shows that only a few people are benefiting from conservation of these wild animals.*



Photo 18: A photo of an area used as a kitchen at Lorong'wani primary school. . Photo courtesy for Said

Recommendations

Said: *I suggest different conservation stakeholders to support development of these communities that conserve and live with wild animals.*

Saidi: *This picture is the toilet at Losong’wani primary school for 330 students and teachers. This situation is not healthy for our children.*

Another loss we receive is from crop damage at the school farm. There were some years when we cultivated, but we do not get any harvest due to wild animals.



Photo 19: A photo of toilets at Lorong’wani primary school, Terrat. Photo courtesy for Said

Said who is a head teacher at Losong’wani was very disappointed at the way students from his school and other in these potential area for wildlife do not benefit from tourism. He showed that schools lack very important basic needs like toilets for students. He questioned how these future generations can understand the importance if they do not benefit from it.

Crop raiding: Participants identified zebra, baboon, ostrich and sometime wildebeest as the wild animals that usually cause destruction in their farms.

Julias: *As you can see in this picture (photo 20), these wildebeest are grazing between farms that are already prepared for planting. The area where they are grazing is the farm which is not yet prepared for farming. There are two effects caused by these animals being in this area. First, during wildebeest breeding season (February-March) pastoralists have to take their cattle far away from these areas to prevent their cattle from getting wildebeest diseases. Another effect is that these animals destroy farms as soon as we sow so; we have*



Photo 20: A photo showing wildebeest on cultivated farmland, Emboreet

to chase them away to avoid them from scratching seed. Moreover, when seeds sprout until harvesting time, we have to watch the wild animals from eating our crops. This means we usually have to work to protect our farms from the day we plant seed to the harvesting day.

Recommendations

Our government should consider compensating people whose farms are destroyed by these animals. People put a lot of effort into cultivation in order to get food to sustain their family for the whole year and for their development, but they end up getting nothing.

When asked if they are aware that according to Tanzania wildlife act 2009 there is compensation program Paulo replied that;

According to wildlife law we are supposed to get compensation for our farms or cattle but I have never seen somebody being paid. We do not even know where to go to complain. When village official report at district level that there are wild animals in the farm, they send game ranger to chase them away and sometime they order to kill one animal and distribute to the villagers but cannot be compensation. That is why we are saying government is not doing right to us. The loss we are getting is for individual person but the revenue we are getting from photographic tourism is for whole community whether you have been affected by wild animals or not.

Joseph: *These are wildebeest in the farm. This picture shows how these animals are living comfortably in our land. They become destructive when the planting season begins because they destroy farms while playing and stepping in the farm that is already planted. So the farmers have to protect their farms.*



Photo 21: A photo showing wildebeest on cultivated farmland, Emboreet

Recommendations

We need the government to pay for the farms that has been eaten by wild animals. We heard that in some places (Example; Rombo in Moshi where there are elephant corridors) the government pays certain amounts as consolation and not compensation. We want to be compensated; otherwise, the government should find a way to prevent these animals from coming this way. What I recommend is that, since these wild animals do not like areas with lot of trees, government should support our community on planting lots of trees so as to have forests in our village that migratory animals will not prefer.

When I asked interviewees if they do not want wild animals at all, Joseph replied that it is not that they do not want wild animals in their village land at all, but they do not want wild animals to be on the farms. He added that they do not have problems with wild animals if they are not destructive.

Joseph: The other picture show farms that was destroyed by wild animals when they cross from one area to another. Some people give up replanting these farms because they don't have seeds or money to replant. For example the family that their beans farm was eaten failed to purchase beans because one sack of beans cost Tsh 200,000/=. You see these "bandas", they are used by guards who protect farms in the night against wild animals but still sometimes they cannot scare wild animals away completely. In the afternoon antelope and ostrich are the one that destruct farms and eat beans (ostrich).



Photo 22: maize farm destroyed by wild animals

Recommendation

Joseph said these animals are also important for them. He gave the example of his Emboreet village that it gets some revenue from tourist investors who brought tourists for photograph; this money is used for the development of the village. However, he recommended that since loss caused by wild animals are for individual people or family it is important for a person whose farm or cattle was impacted by wild animals to be paid by responsible ministry. This will enable a person or family to purchase food that can sustain their family for the whole year.

Joseph added: *Government always talks about consolation payment for me that does not make sense because you can be given Tsh 100,000/= as sorry and you cannot refuse it since is like a person find you in the hospital and give you Tsh 10,000/=. Government should make sure that it receive full report and pay people accordingly, since even investors in the village pay tax and us as village we pay tax to the government so government has money.*

From revenue paid by investors, Joseph explained that villages receive 40% while 60% goes to the Government. *Joseph questions “why can’t they pay us, this is our land, we live with these migratory animals that brought us loss and not to the Government.*

Julias: *Currently, you cannot see most of wild animal around because they have return to Tarangire National Park but you can see their impact in farms. When you are back in December you will see how this area is covered by wild animals.*

Recommendation

Julias suggested that the government pay people who are affected by wild animals. He also argued for government and hunting companies to recognize and value the community that protect these wild animals. “I am saying this because you find hunting companies recognize only ministry and not the village where they come to hunt. So I’m suggesting for these companies to recognize village where they come to hunt and if possible even if they have hunting blocks they have to pay certain amount in the village since currently nothing is paid to the village level by hunting companies. I’m saying this because currently hunting companies just come with their permit; go hunting without even showing village official their documents. A village doesn’t even know how many animals they have been hunted since we are not involved”.

Through their experiences with wild animals, Joseph highlighted the loss caused by wild animals in their farms. Sometimes the wild animals can eat or destroy the farms can cause great loss to villagers who cannot afford to buy extra seed for replantation. The photographers gave suggestions to the government on how to reduce these conflicts by allowing village governments to benefit from the revenue generated from hunting activity. These benefits will enable villagers to realize the benefits of protecting these wild animals.

Joseph: *Government uses revenue generated from wild animals at Emboreet to develop other areas that are not affected by these animals and it forgets about us who farms are destroyed and our cattle are eaten with carnivores.*

Carnivore attack: Participants also mention that carnivores like lion and hyenas that follow wildebeest and zebra migration attack their cattle.

Leiyó: *I took this picture (photo 23) to show how our communities sometimes defend/protect themselves and their properties from wild animals. These are moran (maasai warriors), when there is any case of lion attacking cattle they mobilize themselves for lion search and they kill it. After they kill lion they come back home and celebrate.*



Photo 23: Maasai worriers. Photo courtesy for Leiyó

To deal with dangerous wild animals the Maasai community has warriors that protect people and their properties.

Isack: *Cattle are eaten by carnivores when they are taken to wilderness areas during wildebeest breeding season because in the wilderness is where these carnivores hide. More cases of conflict happen after the wildebeest have returned to the national park because some lions remain in these areas, and since they do not have other sources of food, they turn to cattle and people.*

Conflict with hunters: Most participants were concerned that tourist hunting companies do not have a good relationship with the villages they are hunting from. This theme was mostly discussed at the Emboreet and Terrat villages. Participants complained that they do not get any revenue from hunting activity and that hunters do not report to the village office to show their permits. Because of this behavior they do not know if the hunt is according to the permit given.

Maria identified this area as a land set aside by village for tourism business. Maria elaborated that this area is used for photographic tourism where any tourism company can lease the area and pay certain amount to the village. She pointed out this as one of advantage of having wildlife in their area.



Photo 24: Area set aside for photographic activities at Emboreet

Recommendation

Maria's advice to the Government was to care for people who live with these wild animals and protect them. If people continue to be affected and no action is taken they might decide to do something to eradicate these animals.

Joseph: *The government should respect village decision for set aside this area for photographic activity because currently government purposely brings or give permit for hunters to hunt in this area which affect village objective because these two activities are not correlated. Hunters got more power because they are with game rangers from district wildlife office who protect them which mean Government is more concern to hunters than local people.*

Joseph: *You know through photographic tourism village gets 40% of revenue while through hunting village receives nothing. Another thing that is more of concern about these hunting companies is that, they have tendency of killing herbivores for lion or leopard so that it become huge for good trophy or sometime they kill herbivore as bait. This area becomes dangerous for people and even cattle. Sometime when these hunters realize it is lioness they do not keep supply it with meat and since this lioness is used to get easy food its next target is cattle and sometimes attack people.*

This land set aside by the village seems like an opportunity for village to generate revenue. However, based on participants' responses and discussions, it looks like the village has very little power in these areas because of government interference. The government permits hunters in these same areas, which scares away tourist photographers since these two activities are not compatible. Another challenge the village faces is that the villagers have no say in regards to hunters that come to hunt in their village area. Hunters do not report to the village office, their permits are not inspected, and so the village government does not know if they hunt legally. In addition, the government is also at risk of losing revenue from unfaithful hunters.

When we were in the meeting discussing this issue one of the hunting companies passed the village office without stopping.

Joseph said "As you have seen that hunting company (lukus samaras) have just passed here and they are going for hunting, this caused village to lose revenue because no tourists would want to come and do photograph in area where hunting activities is going on".

2.3.3 Tarangire meeting

The meeting was conducted at Tarangire welfare conference room, on January 10, 2012. One of the aims of Photovoice is to reach policy makers (Wang and Burris (1997). We organized this meeting specifically for the three villages to share their experiences and interactions from living with wildlife managed by the park. The main goal entailed building a stronger rapport between the villagers and the park management. The meetings started with participants chosen by their fellow villagers to present selected photos from each village that represent what they perceived as their most important issues. The research team was commended for facilitating this meeting as a beginning point of collaboration between the park and villages.



Photo 25: Tarangire National Park outreach warden answer participants' inquiries

Terrat village themes

- **Disease-** The tick-borne disease, ndigana or east coast fever and malignant catarrhal fever, transmitted from wildebeests to cattle was identified as the most common disease in their community (Refer photo 5)
- **Development project-** Participants indicated that it has been a long time since the park visited them and supported village development projects. The last support they received was when the park built a classroom in 2003 (Refer photo 17). Participants from Terrat said that, Terrat is the only village that still has a large grazing area for wild animals, while other villages they used to share these wild animals with have changed their land use; therefore, the burden is on Terrat. For that reason, they were expecting to receive more support from the park than other villages so that other villages can learn from them, but the situation has yielded opposite results. Therefore, they advised the park management to look at this issue, as well as insisted that collaboration between park and villages should be strengthened.

- **Village land use plan-** Terrat village has a chart that shows how land is distributed for different uses. Since part of the land was set aside for livestock and wild animals grazing only, this shows their efforts to preserve wild animals. They also have two village game scouts who protect wild animals in the village; however, they need tools to work more efficiently.
- **Hunting blocks** – Participants expressed their sadness about the issue of hunting blocks issues. The village does not receive any of the benefits from hunting activities that are done in their village land and they therefore ask park management to assist them on how to go about receiving revenue and benefits from hunting activity.
- **Cost of treating the cattle** – Participants presented that the joshu (dip- tank or trough to kill parasites in cattle) is in bad shape and that they do not have treatments. So, they requested support from the park to renovate the joshu and buy treatments for the village to wash cattle to prevent tick borne diseases.

Emboreet themes

- **Crop raiding:** The Emboreet participants presented how much they are struggling, from the day they start preparation of the farm to the harvest time, because of wild animals. They asked for park assistance in chasing these wild animals away from their farms and also to compensate people whose farms have been destroyed (Refer photo 20).
- **Disease:** Malignant catarrhal fever was again mentioned as the main source of death to cattle.
- **Carnivores attack:** They also highlighted that their cattle and sometimes people are attacked by lion, so they asked how they are going to be compensated.

Narakauwo themes

- **Shared resources:** The only source of water in the village is a water dam built by the government in the 1950s. The water from this dam is shared among people, wild animals, and domestic animals. Participants asked for assistance to get safe water for people to avoid diseases that can be transmitted between human and animals (photo 10).

- **Crop raiding:** Another issue presented concerned the suffering of people due to lack of food, because of crop raiding by wild animals. They asked for park efforts and collaboration to reduce these conflicts in their community.

Tarangire management responses

Tarangire outreach warden, Mr. Ole Meikasi, responded to participants concerns. He said that villages have to initiate and apply for money for development projects. He also said that the park cannot support every village every year because the park is surrounded by 5 districts and 45 villages. However, the park agreed that it has been too long since they provided support for some of the Simanjiro district's villages, like Terrat. That is why, for the upcoming financial year (2012-2013) the park has directed their efforts and support to the Simanjiro plains villages. He mentioned several projects that the park is going to support, including renovating the Narakauwo dam (30 million Tanzania shillings). However, since the water from this dam is not safe for people's consumption, he advised village leaders to search for other support for safe water from other companies. The Park also has funds (about 60 million Tanzania shillings) to build the Emboret village an administrative building and (62 million Tanzania shillings) to build a secondary school dining hall for the Sukuro village. So, he advised people to tolerate these animals because these are just some benefits and also to treat wild animals as other domestic animals, because even cattle and donkey sometimes destroy farms.

Warden of tourism, Ms. Beatrice Kessy, also wants local people to know that wild animals are a common resource for everybody in Tanzania, and Tarangire National Park has just given the authority to protect them. Villages were also advised to have land use planning for every village to facilitate management and reduce conflicts among people as well as between people and wild animals. The villages were advised to create Wildlife Management Area (WMA) to generate more benefits from wildlife because revenue generated from tourism activities within WMA in their communities will go back to the villages. The warden gave examples of two WMA that have succeeded to generate revenue for the village; one is located in village that bordering Tarangire National Park in the eastern part and the second one is in Serengeti National Park.

For the issue of treatment, the outreach warden told the participants that the park once bought treatments for joshu (dip- tank or trough to kill parasites in cattle) and the park recommended for people to pay a certain amount to the village office in order to have money for buying these treatments. To the park's surprise, the village leaders did not take their advice, and

they ran out of treatments. So, the warden's advice to the village leaders is to request purchase of treatments from the park in the coming financial year.

Concerning the issue of compensation and hunting blocks, the ant-poaching warden said that the Wildlife Division (WD) at district levels is responsible for both. So, villages should request a meeting with wildlife officers from their district to discuss these issues.

Villages' general requests and recommendations

- Regular outreach meetings with park management to discuss various issues about people and wildlife
- Park supported workshops/seminars about WMA's, because most of them they do not understand how it works and how they are going to benefit from it.
- Strengthen protection against poachers with powerful weapons in the Simanjiro particularly during wet season when most of migratory animals are there.
- Park rangers should move to the Simanjiro plains during wet season because of increased poaching activities.
- Park should find a way of providing weapons and motorcycles to the village game scouts
- Local community people should be given priority for employment
- Scholarships for local children to attend high school

3. DISCUSSION

The fact that 95% of themes generated from photographers and interviewees were negative about the interaction between human and wild animals this shows that most villagers do not realize the benefits from wildlife. This report shows that most local people are used to living and interacting with these wild animals. However, they are not pleased with the revenue they've received from tourism activities. This finding is similar to the study done by Brett et al (2009) in Samburu Kenya. In this study, interviewees acknowledged the economic benefit the community received from tourism, but it remains very minimal compared to the revenue the park generates. Currently, local people from this study feel like they are abandoned by the Government and the revenue generated from wildlife conservation does not benefit their community despite the fact that they are the ones that are mostly affected by wild animals. This statement agrees with a study by Lynn (2010), which stated that the revenue generated from tourism activities benefit the whole country while the destruction caused by wild animals have more impact on local communities neighboring the protected area. The burden is more during the wet season when these wild animals migrate to community land and share resources like pastures and water with livestock which cause disease and threaten humans as well as livestock.

Local people also, want to be compensated for the loss they receive from wild animals. According to the wildlife conservation Act, 2009 section 71 subsection (1) (2) has allowed the payment of consolation money and has given the minister the power to make regulation on the payment of consolation in case of loss of life, livestock, crops and injury caused by dangerous animals. However, most local people do not know that this exists because they have never been paid even after submitting their loss report to village leaders. Another challenge is that in order to be paid they are required to bring evidence of the destruction with them which is very hard to prove (Lynn, 2010). Moreover, local people demand to be compensated according to their loss not to be given consolation. For example, if a cow is eaten by lion they require to be paid the market price of that cow. The same should apply to farms but according to law, maximum compensation for farms is five acres (Tanzania Ministry of Wildlife 2009).

Despite the fact that wildebeest cause disease (Malignant Catarrhal Fever) to cattle most participants identify them as polite and less destructive wild animals compared to zebra, lion, buffalo and elephants. The reason behind this might be that local people have adaptive strategies to avoid this disease by taking their cattle away from wildebeest breeding areas. In a study by Lynn (2010), wildebeest revealed a negative response to cultivation. Wildebeest prints

are rarely observed in fields. According to local people, wildebeest do not eat maize but they can be destructive when they go in the farm to play. Generally, people were also tolerant and have positive attitude towards wild animals because they believe that they are God's creatures.

One of the issues that participants frequently mentioned in the interview was the fear among villagers that Tarangire National Park is planning to expand its' boundaries. So, to avoid their land from being taken by the park, local people decided to clear the land for agricultural activities. Several studies indicated this insecurity among local people; according to Lynn (2010), people responded to their fear by expanding the density of their farms. Residents lease out land to immigrants of the study area who want to engage in agriculture activity, in return for harvest. Due to unreliable rainfall pattern, several times people harvest nothing. However, local people continue to lease their land based on the win-win-lose situation (Kshatriya et al, 2007). TNRF (2005) found that the reason pastoralists turn to agriculture is associated with the issue of land tenure insecurity and family livelihood. Pastoralists have also been engaged in tourist activities and mining of gemstones. However, these activities have minimal impact on pastoralists' livelihood which makes livestock keeping continue to be a leading activity in Maasai livelihood (VETAID, 1994). These practices that aim to diversify the economy of pastoralists results in wild animals to change their migration route to the area with less dense cultivation (Lynn, 2010) also as result of the blockage of migratory routes from protected areas to dispersal areas like Simanjiro plains there is huge extinctions of native species (Kideghesho, 2002), habitat loss, and fragmentation that separate protected areas from surrounding habitats (Wittemyer et al, 2008). Most local people's responses during the interviews revealed that agricultural activity is not compatible with wild animals, which is why the human-wildlife conflicts increase in these areas.

Another challenging issue that came up in this study is about hunters who are given permits from district levels to come hunting in the villages, and who tend to ignore the village government. Photographers from Emboreet and Terrat elaborate this as a depraved way to go especially in conservation and revenue. They elaborate that since the hunters do not report to the village office there is a high chance for them to hunt without permits or abuse what is in the permit. The villagers advised the government to allow them to inspect the hunters when they hunt in their village.

Another issue that came up during Photovoice discussion and during household interviews was that local people were worried that the government and park were using researchers and Non-Governmental Organization (NGOs) to convince villagers to stop

agriculture activities and engage in conservation, like the establishment of WMA. Local people are worried that if they establish WMA the government will later claim the land to be part of the park. However, after the meeting with the park management, they were advised to establish the WMA because it will benefit villages. Participants requested a workshop that will clarify this change to all members of villages and understand if it is really for village benefit.

The meeting between photographers and village leaders with the management of Tarangire National Park was one of the biggest and most successive steps to collaborative conservation. This meeting was an eye-opener for both the villagers and the park. Villagers received clarification on several matters. For example, before this meeting, local people thought that Tarangire National Park was the institution responsible for the issue of compensation only to find out that it was supposed to be paid by the wildlife division at the district level. On the other hand, the park management was amazed by the way local people are concern about the poaching activity going on in their villages, usually done by the people from Arusha and their enthusiasm to collaborate with park management to end it. What we noticed during this meeting was that there was lack of connection between these two entities. Since managing protected areas is difficult, local people's involvement in decision-making can be a key factor in meeting the conservation goals (Brett et al, 2009). The first step to enable collaboration among conservation stakeholders is to assess the existing communication system (Kernel, 2005; Brett et al, 2009) and engage in meaningful discussion and exchange of information (Backman and others 2001; Bryan 2004; Brett et al, 2009). The benefit of involving local communities can be seen in several studies; one is the connection formed in post-industrial England (Curry, 2000) and ecotourism in South America (Farrel and Marlon, 2002). Failure to incorporate local people lead to lack of trust and poor participation of local people on conservation efforts (Songorwa, 1999)

4. RECOMMENDATIONS

Despite the existing human-wildlife conflicts described by local people from three villages of the study, villagers are willing to talk with conservation stakeholders to discuss these issues and how to reduce the conflicts. This is a great opportunity for conservation stakeholders like Tarangire National Park to strengthen the collaboration with local people in order to face these challenges. There are many management/institutional issues that local people are not familiar with, like the institution that is responsible for the compensation for loss caused by wildlife.

Currently, local people think that all issues which regard wild animals are the responsibility of the park. The park should have regular meetings with local villagers to clarify these issues.

Local people also have a bad attitude concerning conservation activities introduced to them, like WMA, for the fear that government is going to take their land as part of park. This is caused by lack of information and lack of involvement of local people in conservation issues. Due to misconceptions, even though a WMA is a good way for villages to benefit from conservation, local people may not see it that way. Another challenge that should be dealt with is the training on how to establish the WMA because according to the guideline for the establishment of a WMA, local people are required to acquire extensive training (Goldman, 2003). According to Tanzanian wildlife policy, WMA “means an area declared by the Minister to be so and set aside by village government for the purpose of biological natural resources conservation”(URT, 1998). The aim of giving WMA management to local communities is not only to protect corridors, migration routes, and buffer zones, but also to enable the local communities to obtain economic benefit from wildlife conservation. Wilfred (2011) identified four economic opportunities that communities might benefit from WMA. These are: subsistence hunting, non-consumptive tourism, beekeeping, and utilization of forest resources. “The Wildlife Division, in collaboration with wildlife related institutions such as TANAPA, NCAA and District Councils will carry out vigorous sensitization sessions with the villages” (URT, 2003). However, based on negative responses to a WMA by participants, it seems the sensitization is not done in the study area. This situation demands for conservation institutions to act quickly on awareness creation in this community.

Community Conservation Services (CCS) is an outreach program established by the Tanzania National Park (TANAPA) in the early 1990s for the aim of sharing park benefits with neighboring communities. However, it is community that has to initiate these projects (TANAPA, 2007). Since there is lack of information most villages they do not apply for these projects. Also, for a park like Tarangire, with 42 neighboring villages, it becomes hard for one person in the department to supervise all projects as well as provide conservation education to the local people and in schools. Most people who participated in this study had never participated in any conservation education efforts. Moreover, even though the park has supported several development projects within the community, most people are not aware that it is the park that did this. As such, there is a strong demand for the park management to involve all local people in the village when supporting these projects. This can be done by organizing village meetings and explaining the park contribution to the project.

For the duration of the study, one of the biggest challenges that kept being raised was the lack of connection between communities and conservation stakeholders like the national park. So, for sustainable conservation of wild animals within the Tarangire-Manyara ecosystem, we recommend for collaborative conservation initiative among stakeholders. If people got to know how they benefit from wildlife and that their traditional knowledge is incorporated in decision making, they might be tolerant of wildlife and they will participate in conservation efforts. It is important for conservation managers to work on developing a communication system that works for all stakeholders and to assess the system every now and then to see if, and how, it works.

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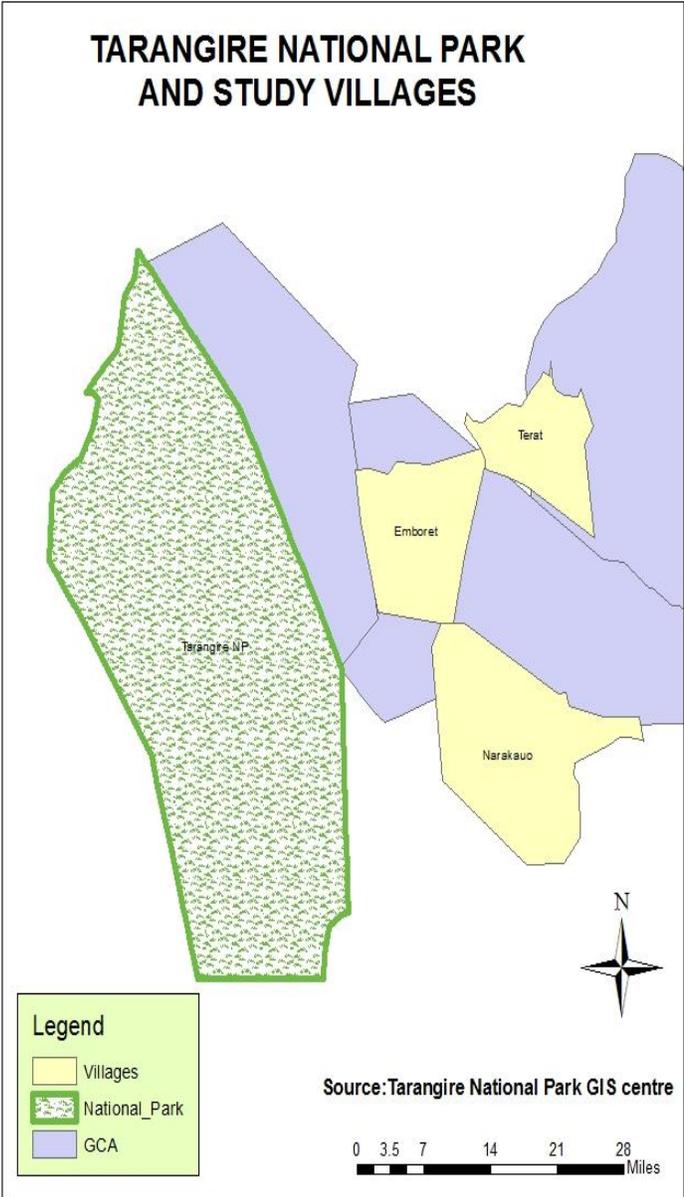
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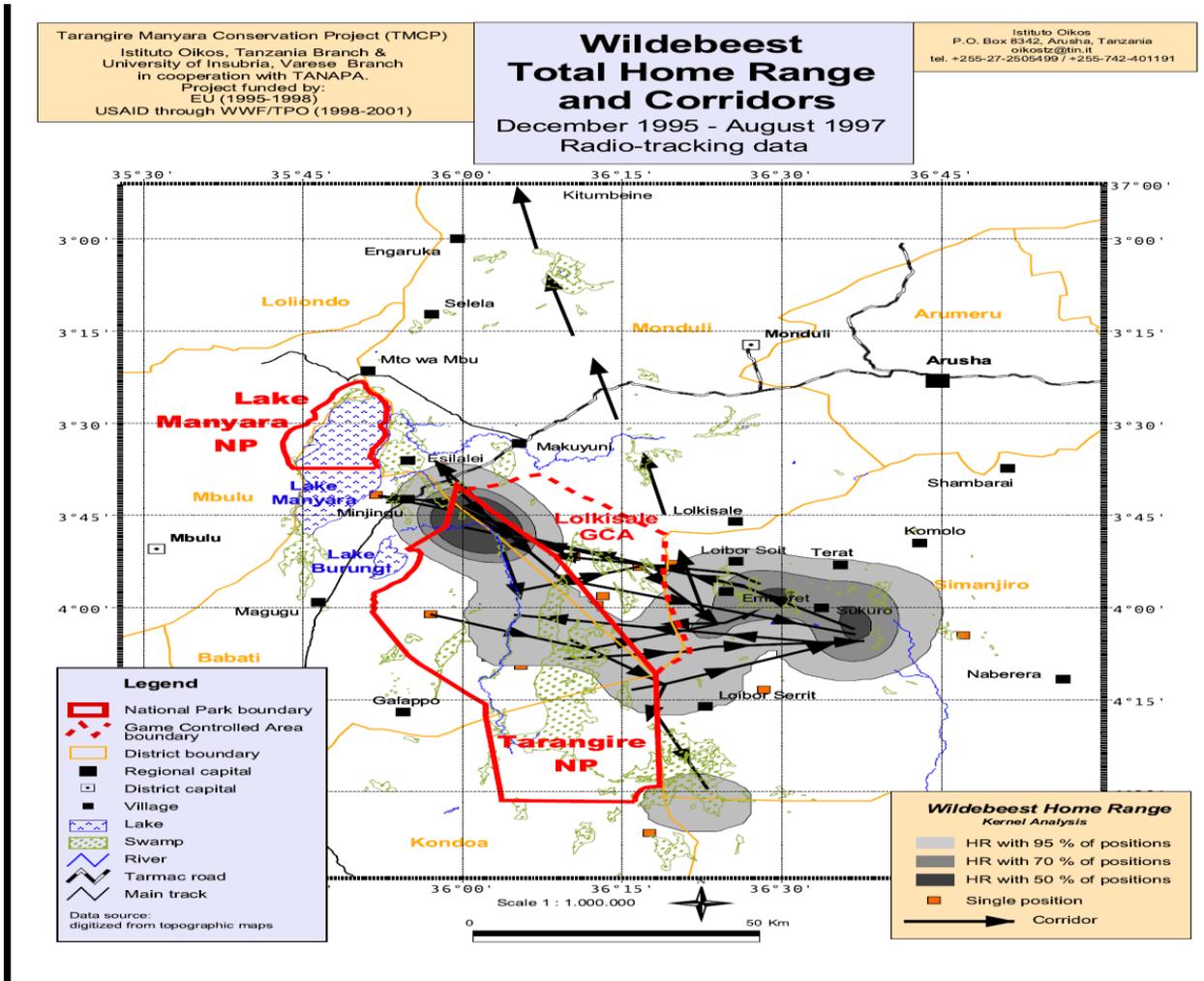
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Appendix 1: Tarangire National Park and study areas

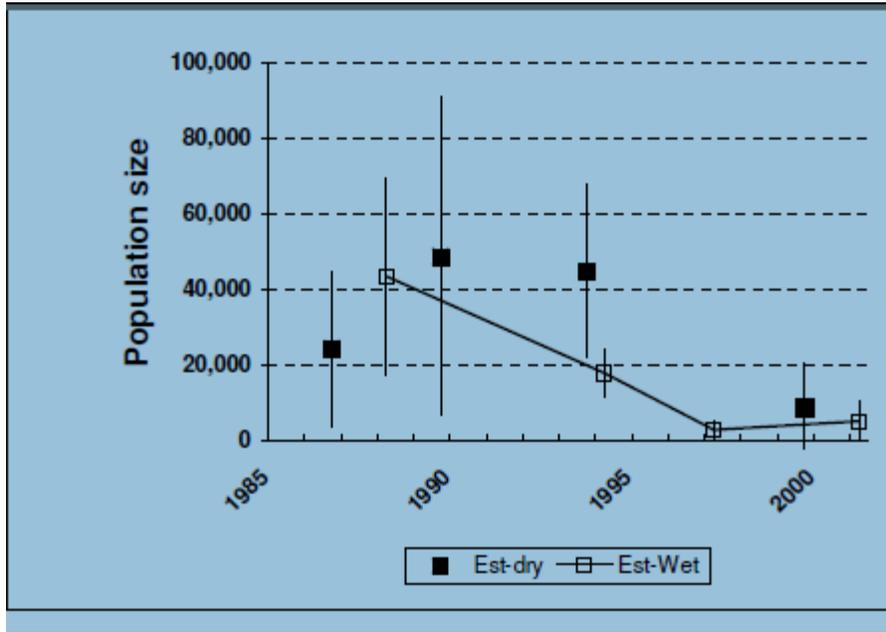


Appendix 2: Wildebeest Home range and Corridors at Simanjiro plains



Data source: Tanzania Wildlife Research Institute (TAWIRI)

Appendix 3: Wildebeest population trends from historical SRF data, wet and dry seasons



Data source: Tanzania Wildlife Research Institute (TAWIRI) May 2001 Aerial Survey Report

Appendix 4: Simanjiro questionnaire

CROSS CULTURAL PERSPECTIVES OF LOCAL PEOPLE OF SIMANJIRO PLAIN, TARANGIRE NATIONAL PARK AND CRESTONE COMMUNITY, GREAT SAND DUNES NATIONAL PARK AND PRESERVE ON MIGRATORY HERBOVORS AND PARK.

Personal information

1. Please tell me what is your tribe
2. How long have you been living here?
3. What attracted you to live here?
4. What social economic activity are you engage in?
5. How your tribe norms perceive wild animals and environment?

Human-wildlife issues

6. Are you familiar with migratory animal wildebeest
7. How frequently are do you encounter with wildebeest
8. Can you please describe your perspectives on wildebeest: reasons
9. Are wildebeest problem to you? How?
10. What are resources shared between livestock, human being and wildebeest?
11. Do you think wildlife have advantage for you? Explain?

12. Do you think increase in land use changes contribute to increase in Human wildlife conflict?

13. What are problems caused by other animals besides wildebeest

Relationship with the park

14. Do you know Tarangire National Park?

15. What relationship does village/villager have with the park?

16. What are benefit you receive from wildlife authorities (Wildlife Division, Tarangire National Park)

17. Are you by any chance being involved in decision making concerning wildlife in your area?

18. Please solution taken by village, Division of Wildlife, and Tanzania National Parks to resolve these conflicts.

19. Please give your recommendation on how to resolving these human-wildlife conflicts.