Portfolio Project Option 2: Conservation of The Serengeti

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The Serengeti ecosystem is a game reserve in Africa located in the Northern Tanzania and extending into Kenya in the South-Western parts. The reserve spans about 12000 squared miles. The Kenyan section of the Serengeti reserve is called Maasai Mara.

The reserve is home to the biggest terrestrial mammal migration in the whole world thereby securing it a slot in the list of the seven natural wonders of the world, yet again appearing in the list of the ten natural travel wonders of the world. The park is also renowned for its huge lion population and is one of the wonderful places to observe the pride in nature.

The park is home to about 70 large mammals and 500 species of birds. This great diversity remains a function of diverse habitats encompassing swamps, riverine forests, woodlands and grasslands. Buffaloes, Zebras, gazelles and blue wildebeests are some of the large mammals that the park is home to.

The ecology

The Serengeti harbors east Africans finest game areas. Other than being renowned for the popular great migration, the park is also popular for its abundant big predators. The ecosystem is habitat to over 1000 leopards, 3000 lions and about 8700 spotted hyenas. However wild dogs are relatively scarce in the region, wild dogs were reported to become extinct in the year 1992 with its predators the hyenas and lions being cited as the direct cause to the extinction (Estes,2009).

The park is also home to many grazers including warthogs, African buffalo, eland, grant gazelle and waterbuck. The park can support this vast number of diversified species because each of them has a different diet (Harris et al,2009). For instance, Zebras graze on taller grass and wildebeest prefer shorter ones. Similarly, dik-dik consumes the lowest branches of trees

while giraffe and impalas eat those that are higher up. The involved governments that is the Kenyan and Tanzanian governments give legal protection to the park and its reserves.

The role of humans in the Serengeti region

Much of the park was known as Maasailand by outsiders, the Maasai communities also believed to be fierce warriors live alongside the wild part of the region with an aversion of hunting the birds and game exclusively subsisting on their cattle. Their reputation and strength historically kept the Europeans from exploiting the resources and animals of most of their land. A Rinderpest epidemic reduced greatly the population of both the game and the Maasai in 1890s. The government of Tanzania later resettled the Maasai in the Ngorongoro crater (Kidegesho et al.,2005).

The absence of poaching and forest fires which had been due to human activity led to the development of thickets and dense woodlands over the next 50 years. During the mid 1970s the cape buffalos' population and the wildebeest had recovered and were cropping the grass again, thereby reducing the fuel amount available for fires. Acacia has become established once again due to the reduced intensity of fires. During the 21st century, programs of mass vaccination of rabies for domestic   dogs in the region apart from preventing many human deaths have protected also the wildlife species like the endangered African dog.

The Great Migration

Every year around the same time, a circular migration of wildebeest starts in the Ngorongoro conservation region in Tanzania and follows a clockwise direction across the Serengeti Park through the Maasai Mara reserve in Kenya. This great migration is a natural phenomenon that is as a result of grazing issues. The initial phase takes about three months from January to March when the season of calving starts – a time when the rain is in plenty and there is a lot of grass for the 1.7 million wildebeest preceded by about 20,000 zebras and many other plain game.

In February, the wildebeest feed on the short grass in the plains and give birth to about 500,000 calves in a period of about 2-3 weeks. A few calves are born before time and not many of them survive, reason being that they become noticeable to predators and get prayed on. While the rains come to an end in May, the animals trek towards the north along the Grumeti River where they remain till the month of June. In July, the animals begin to cross the Grumeti and the Mara River and become a popular safari attraction. In late July, the herds arrive in Kenya and stay up to August till the dry season is over. With the start of the short rains in early November, the migration starts moving towards the south again, usually arriving in December to feed on the short grass plains in the south east and to calve. During the journey form Tanzania to Kenya about 250 000 wildebeest die due to hunger, predation and exhaustion.

Threats facing the natural area

The numbers of Warthog, giraffe, impala, hartebeest and topi fell by about 50% between the year 19979 and 2002. This decline is linked to rapid growth of human settlement around the park according to a research done by the international livestock research institute in a journal of

zoology (Kahurananga, & Silkiluwasha, 1997). This situation does paint a bleak image and required decisive and urgent action if the treasure has to be saved from the disaster. The loss of grazers is already creating an impact to the lion population and the cheetahs. The carnivores are the first casualties since they depend on this wildlife. The lion populations are greatly going down while the wild dogs have become extinct.

The Serengeti and the Maasai Mara are world popular for their wonderfully exceptional population of wildlife-including a yearly migration of approximately two million wildebeest.

The Mara itself was voted recently as one of the Seven Wonders of the World. But during the near past many species of animals have been threatened by severe droughts, more intense grazing by the Maasai communities and increased poaching. The ILRI between 1989 and 2003 carried out a monthly count of the 7-ungulate species – the hartebeest, giraffe, impala, zebra, warthog, waterbuck and Topi. The results depicted a decline in their populations especially in hartebeest and warthogs. These trends have been supported by separate different aerial count of the game animals that was done between 1979 and 20002 by the Kenyan government resource sensing and department of resource surveys. By the year 2002 the giraffe population had fallen in the reserve by about 20% of the levels that there was in 1979, the bulk of these losses did occur in the year 1989.

Hartebeest and Topi fell to about less than half in relation to their population in 1979 and almost disappeared in the ranchlands that are in the neighborhood where they used to graze.

The number of impalas declined by about 70% in Mara alone while that of warthogs fell by more than 80 percent despite appearing steady since 1989.

Erosion of the habitat

The game loses were greatly pronounced in the regions where the populations of human settlements had risen, even after factoring out the impact of drought. Wildlife had been reported to be constantly moving between the ranchlands and the reserve and they were reportedly increasingly competing with livestock for habitat (Campbell and Borner,1995). Particularly more human settlements in the ranchlands are grazing their livestock in the reserve which is an illegal activity the Maasai community resort to when stricken with prolonged drought. This intrusion causes a steady erosion of the game habitat therefore leading to the observed declines. By the time the survey was ending in 2002, the populations of human settlement and agriculture have continued to increase and human activity like grazing on the game have soared greatly , so the declines are more likely to be accelerated. The Maasai settlements in the right circumstances can actually benefit the game grazers populations, the researchers found. The researchers sated that human settlement can act as safe havens by repelling predators away as a result of human activities. The traditional Maasai who depended mostly on livestock and who never consumed wild animals, helped to maintain the abundance of the grazers in the region, and this has continued to help the grazers in places where it is practiced, though the growing pastoralist communities and their exclusion from the formulation of land policies have made it impossible to maintain their traditional way of life.

In the past few decades, most Maasai have left their homesteads composed of mud walled and grass thatched houses to more permanent houses a huge number of which have now crowded the ranchlands bordering the park. With increase in these permanent human settlements, the abundance of wildlife went down significantly. The scientists at ILRI are helping to promote schemes where the human communities that live near the park are given rent payments from

privately owned lodges in return for allowing the game animals to continue to wander on their property.

The loss of habitats

This remains one of the main wildlife threats globally. In East Africa, the decline of wildebeest migration is as a result of land use activities including land subdivision, cultivation, fencing, settlements that disrupt the movement of the migration and cause the population of wildebeest to decline drastically (Bedelian,2012).

Fences

They interfere with migratory routes and cause deleterious effect to the population of wildlife. Fences are used as a means of stopping the disease transmission and resource competition between livestock and wildlife, to protect homes, prevent poaching and to protect crops. Fences are however known to disrupt migratory routes thereby decreasing wildlife populations. More than 20% of the Mara ecosystem has been fenced and several migratory routes that link the game reserves have been blocked (Kideghesho et al.,2006).

Roads

Roads obstruct migratory routes. They cause deaths of wildlife due to vehicle collusion and decrease the connectivity of landscape (Fyumagwa,2013) . Due increased access road networks are capable of opening up new developmental areas leading to the incompatibility of land use with wildlife (Dobson et al,2010).

Solutions to the threats

Investing in evidence-based solutions

We know that for many years in history, pastoral livestock keeping has co-existed with the renowned concentration of game animals of East Africa. Therefore, this means that policy makers should look to these pastoralists to obtain solutions to the current problems. With the help of local communities and the significant revenues coming from tourism, we should be investing in evidence-based approaches that can protect the iconic wildlife population as well as the pastoral communities (Duerksen & Snyder, 2013). Since most migrant stroll outside the protected zones, it is important that the local communities as well as the landowners be included in conservation programs, for the benefits of sharing and the management of wildlife. In the range lands of East Africa, the economic benefits from wildlife to local communities has been meager with limited incentive to initiate migrant protection programs, their migratory corridors or their dispersal areas.

Efforts should be made to ensure that wildlife dispersal areas are protected and migratory corridors kept safe and free from human interference through the use of conservancies and initiation of economic incentives (Estes, 2006).

Coming up with a solution to solve the water hazard

Africa has been particularly vulnerable to climatic change; the ever-rising temperatures are capable of cutting crop yields by more than 20 percent. In an ecosystem that is already depleted and with poor infrastructure unable to handle a population that is growing so fast, the region is in the brink of a bleak future. The problems of water shortages go beyond the Savannah and affect humans too (Ogutu et al.,2012). This shortage has made the local communities to

compete with wildlife for critical resources. One of the best solutions to this is the creation of irrigation systems and dams to deal with the situation when drought comes.

Another viable solution to the threats is the formulation of conservation policies, for example the conservation of the migratory routes need the implementation of plans to conserve protected boundary areas. Migratory corridors and dispersal areas can be opened up for wildlife by encouraging land use that is wild life friendly and the participation and cooperation of private and community landowners. The correct enabling policy and a conducive legislative environment should be provided by governments to support conservation initiatives, because of the trans- boundary nature of the wildebeest migration in the East African region, the respective governments of the involved countries should come together in a collaborative approach to mitigate the threats that face the migration.
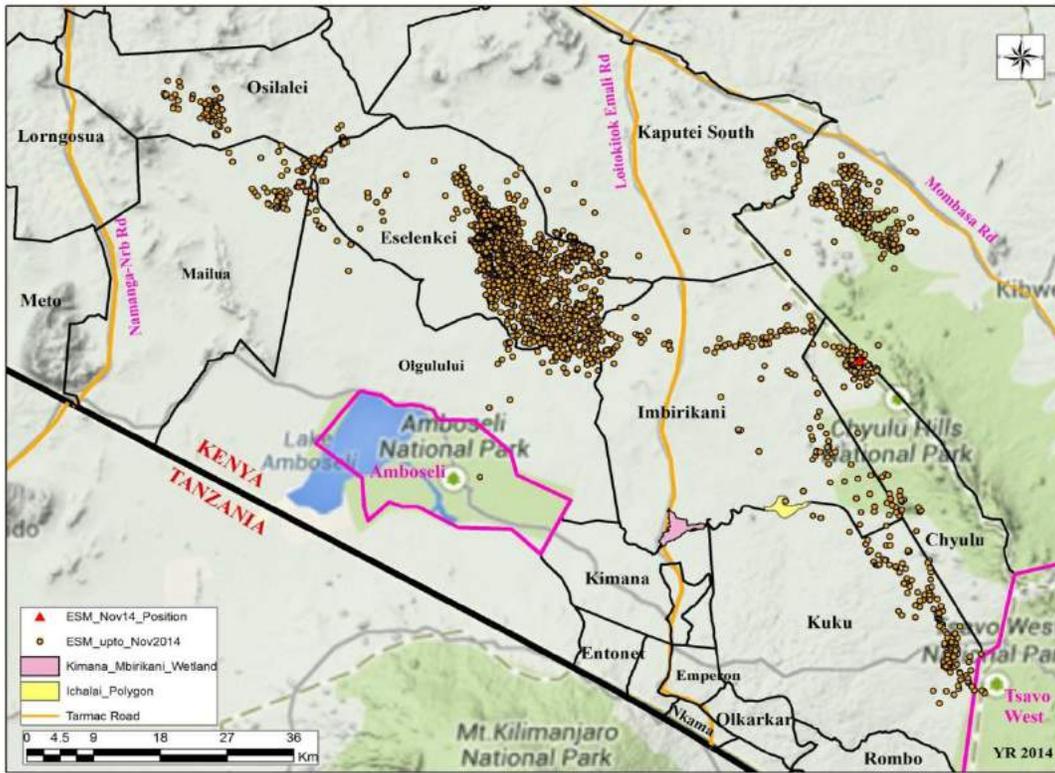
One way I can help save the migration

To save the migration I would participate in the gathering ad provision of good scientific information regarding where, when and why the migration of the wildlife occur to inform management and conservation decisions. This would encompass tracking and mapping the movements of the game animals, the levels of the population, the ecological drivers of the population and a better understanding of the threats to the migrants as well as their habitats.
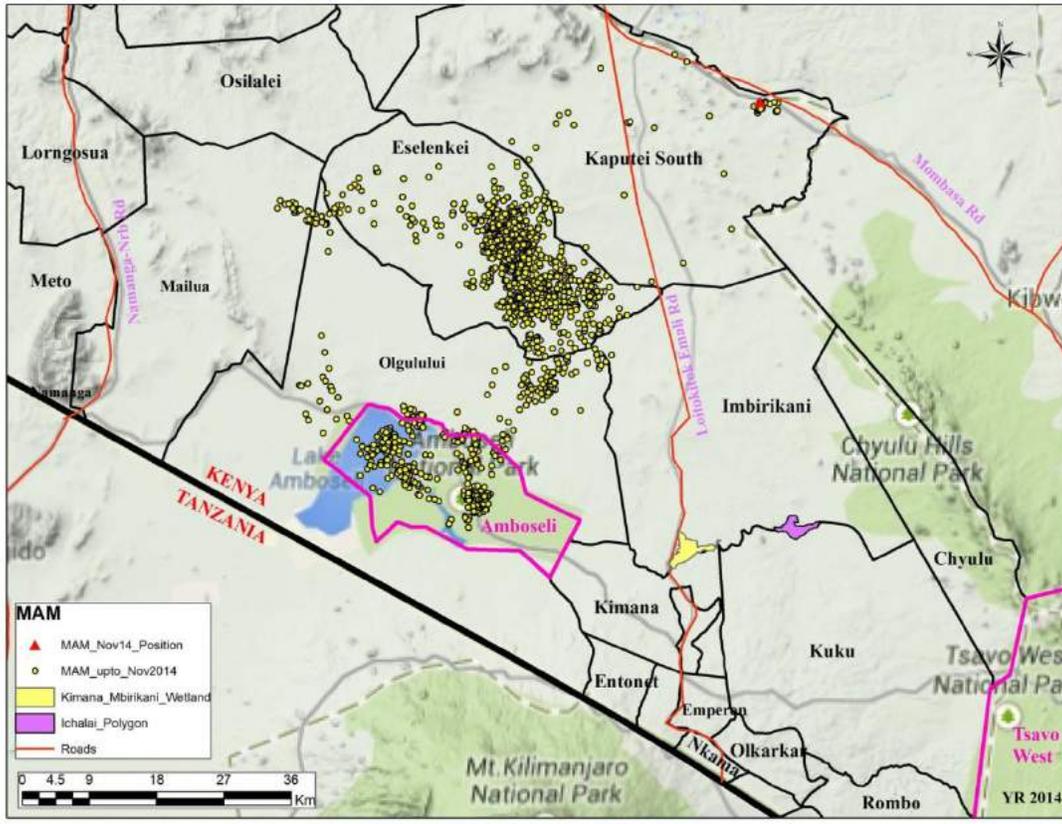
According to CSU 2013, the collaring of wildebeest as a means of tracking their movement helps in making decisions about how to secure their critical habitats. By participating in this, there would be a proactive approach in place anticipating to respond to the crisis since scientific data would be in place to help make informed decisions.
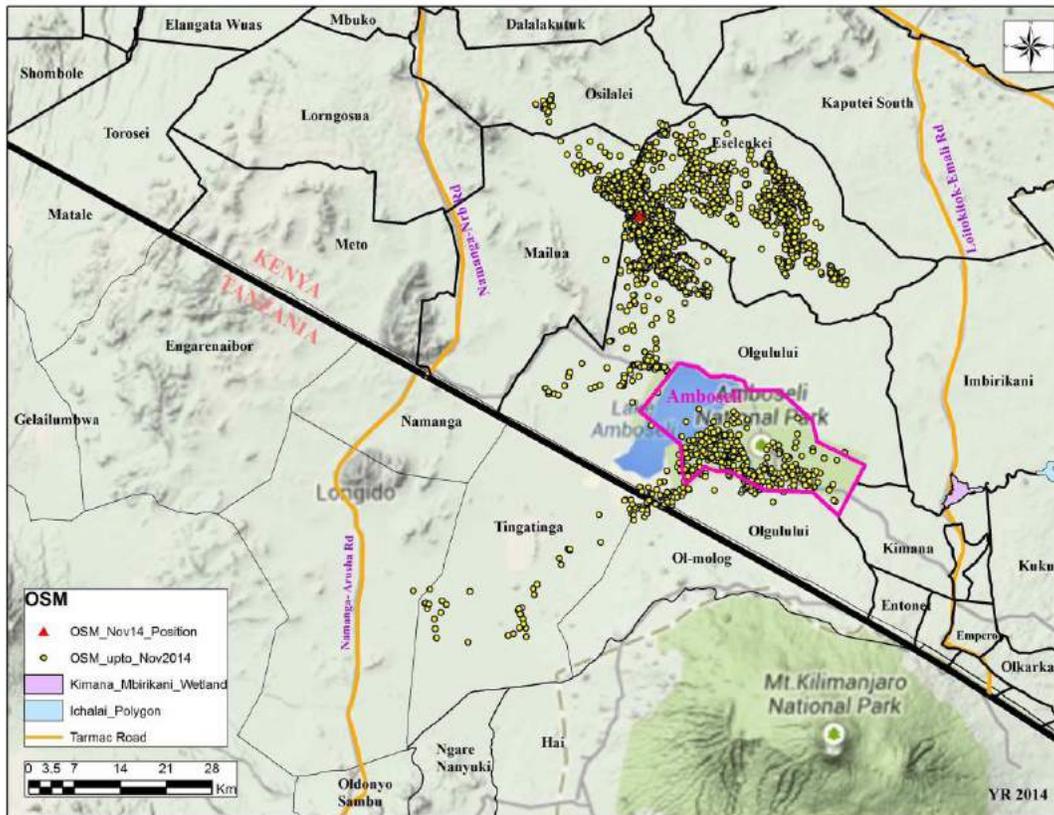
This initiative is likely to inform decision making and policy formulation in conservation measures. If this initiative is done on a continuous basis there is the possibility that the migratory routes as well as the critical habitats of the game animals will be protected from the threats they are currently facing.

Data due to mapping

The below maps produced by and KWS, IFAW and SFS track and map three different collared elephant bulls (called ESM, MAM, and OSM).The mapping shows how the Selenkay Conservancy has been used in the Eselenkei Ranch as part of their extended rangeland far off the Amboseli National Park. This shows how the animals have extended their range far off the Park into their former areas of dispersal. Mapping shows the movement of animals and the areas that they are therefore calling for conservation purposes.

Pamphlet

The Serengeti ecosystem is a game reserve in Africa located in northern Tanzania and extending into Kenya in the southwestern parts. The reserve spans about 12000suqare miles. The Kenyan section of the Serengeti reserve is called Maasai Mara.

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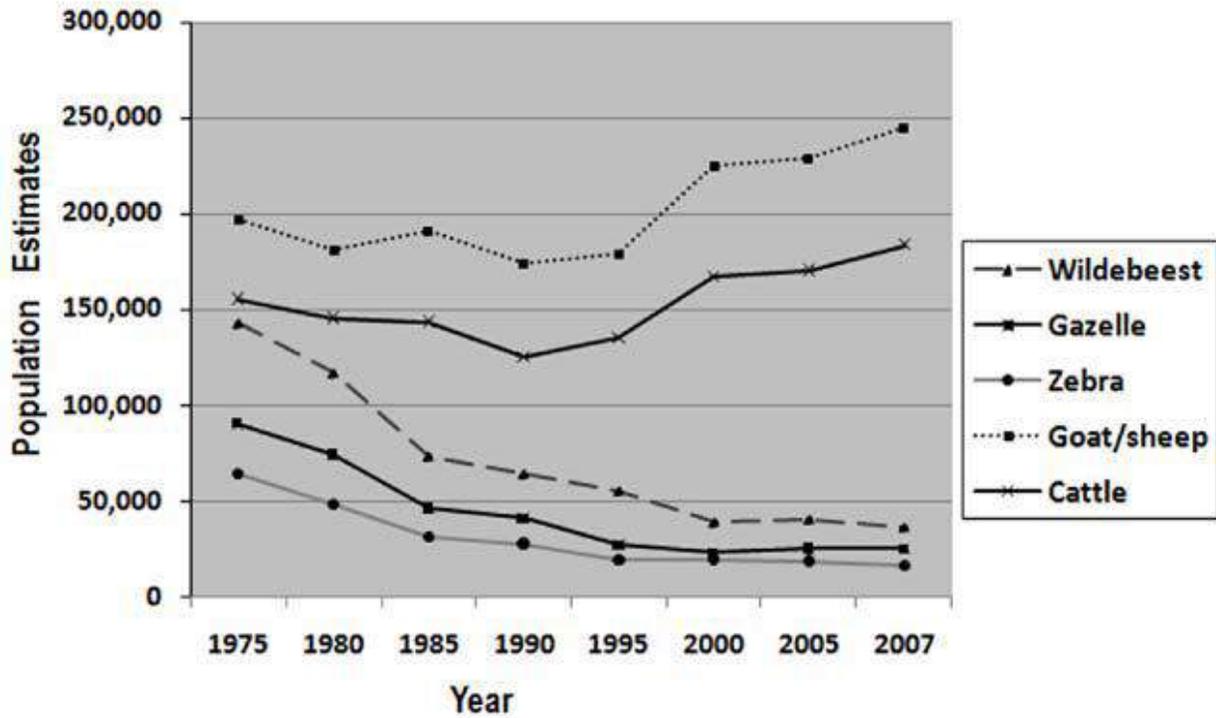
the park according to a research done by the international livestock research institute in published in a journal of zoology.

This situation does paint a bleak image and requires decisive and urgent action if the treasure has to be saved from the disaster. The loss of grazers is already creating an impact on the lion population and the cheetahs. The carnivores are the first casualties since they depend on this wildlife. The lion populations are greatly going down while the wild dogs have become extinct (Sinclaire et la., 2008).

The number of impalas declined by about 70% in Mara alone while that of warthogs fell by more than 80 percent despite appearing steady since 1989.Since this was a report conducted in 2002, it can only be imagined how drastic the situation currently is since the human settlements have continued to increase over the years, this has also made their activities that are not game friendly to increase to (Wilcove, & Wikelski,2009).With such a situation at hand, I call upon the individuals, the civil society, the private sector and donor to come together and help save the world's greatest migration in East Africa.

livestock and livestock population trends in Masai Mara Ecosystem, 1975–2007.
Source: Aerial survey by Department of Resource Surveys and Remote Sensing (DRSRS).

Wildlife and livestock grazing together, there is stiff competition forPastures due to increased overstocking in Masai Mara

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