Conservancy Management Plan, 2017

Soysambu Conservancy, Kenya

Contents

1. Executive Summary

Projects Abroad Kenya, along with its African Savannah Conservation Project partner Soysambu Conservancy, is located in the Great Rift Valley of central Kenya. Soysambu Conservancy is a not-for profit organization that is dedicated to protecting 48,000 acres (190 km^2) of land for wildlife and other compatible land use. The conservancy is located in the heart of the Great Rift Valley in Lake Elmenteita Basin in Nakuru County about 120km northwest of Nairobi. Soysambu Conservancy is in Kenya Wildlife Service's (government's custodian of wildlife and its resources) list of endangered ecosystems and in need of urgent conservation. The conservancy is home to more than 100 of the endangered Rothschild's giraffe (*Giraffa camelopardalis rothschildi)*. Projects Abroad has partnered with the conservancy to help undertake the monitoring of this sub species. Work at this project will prove to be very crucial in the battle to conserve this species along with many other mammal and bird species that are threatened within this reserve.

The entry of a pride of lions from Lake Nakuru National park (LNNP) into the area in 2015 proves how the conservancy is interconnected with the park. Therefore, a monitoring program designed to document information on population dynamics of the lions (*Panthera leo),* their movement, and level and pattern of livestock predation, is vital to manage and conserve the alpha predator in an environment characterized by the presence of livestock and humans. This will provide data and information to formulate prudent management and conservation guidelines for carnivores in the conservancy.

The conservancy borders Lake Elementaita, a shallow alkaline lake (1,800 ha; maximum depth 1.9 m) lying on the Rift Valley floor. Lake Elmenteita is a Ramsar site (wetland of international importance) and one of Kenya's Important Bird Areas. It is partly monitored by Soysambu Conservancy and we are working closely with them. This is one of Kenya's Lake systems and one of the most important foraging sites for the Lesser and Greater Flamingo in the world. The lake is also home to Great White Pelicans and has become their main nesting ground. Currently, under national law, Lake Elmenteita is protected as a National Wildlife Sanctuary Lake. In 2011 the lake was inscribed on UNESCO's World Heritage List. The natural vegetation is mainly Acacia and *Tarconanthus camphoratus* bushland interspersed with *Themeda triandra* grassland. Patches of *Acacia xanthophloea* woodland occur near the shore, and formerly covered a large area south of the lake.

This partnership aims to secure and improve the dwindling biodiversity through sound wildlife management and conservation in Kenya. In Kenya, close to 70% of wildlife resources occur outside protected areas in private and communal land. Soysambu Conservancy is a classic example of how communities provide protection and refuge to wildlife. Community owned conservancies have few resources and lack the capacity to manage these resources sustainably, hence the need to collaborate with another organization with a similar agenda and objectives. This ensures successful and viable conservation of wildlife and their habitats through research and monitoring. These programs are crucial when there is involvement of endangered species and both fragile and sensitive ecosystems.

2. Backgorund Information

Kenya is an East African country bordering the Indian Ocean between Somalia and Tanzania. Its geographical location lies at 1 00N 38 00E with a total land size of 580 367 sq. km, of which 569 140 sq. km is land and 11 227 sq. km made up of water bodies. It borders Ethiopia, Somalia, South Sudan, Tanzania, and Uganda with 536km of coastline. The building of the railway from Kenya's coastal town of Mombasa to Uganda in the early 1900's opened up the country to settlement by European farmers. Previously, these lands were utilized by the nomadic Maasai herdsmen. The topography of the country varies dramatically from flat plains to the Great Rift Valley, which runs through the centre of Kenya from north to south. It is in this rift valley that Kenya's two highest points can be found, Mount Kenya and Mount Elgon.

Map of Soysambu conservancy and its environs (Google Earth)

The conservancy sits next to the Kariandusi archaeological site, among one of the first discoveries of Lower Paleolithic sites in East Africa. There is enough geological evidence to show that in the past, large lakes, sometimes reaching levels hundreds of meters higher than the Present Lake Nakuru and Elementaita, occupied this basin. Dating back between 700,000 to 1 million years old, Kariandusi is possibly the first Acheulian site to have been found in East Africa. Dr. Leakey, a renowned paleontologist, believed that this was a factory site of the Acheulian period. He made this conclusion after numerous collections of specimens were found lying in the Kariandusi riverbed.

The population of Kenya is 43,013,341 people with 22% of the population living in urban areas. The climate varies from tropical along the coast to arid in more central areas. Environmental issues in Kenya, like most of Africa, are a mixture of man-made and natural. Natural hazards include recurring drought followed by flooding during the rainy season. Droughts bring an increase in desertification and soil erosion as soils are left bare. Some of the most alarming environmental issues connected with human activities are the pollution of water bodies and deforestation, both of which have detrimental effects on biodiversity. Arable and permanent farming make up roughly 9% of the land which is often within close proximity to water bodies indicating quite a large amount of land at risk.

2.1 WEATHER AND CLIMATE

The area is generally a marginal zone and falls under agro-climatic zone IV, which is semi-arid with a mean average rainfall of 600-1100mm, a mean maximum temperature of 22-26ºc, and mean minimum temperature of 10-14ºc. The daily weather is characterized by warm to hot days and cool nights. During the wet season, the maximum temperatures are generally lower than that of the dry season, probably the result of the higher percentage of cloud cover resulting in reduced irradiation. Rainfall follows a typical bimodal distribution pattern in the Kenyan Highlands with two main rainy seasons, which fall from March to May and short rains from October to December.

2.2 LAND USE

Wildlife used to wander freely in this region and the Maasai community, who are pastors, used to graze their livestock in peaceful co-existence with wild animals, utilizing the same rangelands and resources for centuries. Then, during building of the railway in Kenya in the late 1890's, the railway passed very close to the conservancy opening it up for European settlement and later it became part of European settler highlands. The land use here is wildlife conservation, tourism, and wildlife-compatible livestock ranching.

2.3 GEOLOGY/SOILS

The region is dominated by two types of quaternary deposits, one of which is lacustrine and the other volcanic in origin (*Thompson and Dodson. 1963 in Atkilt et al. 2001*). Geology is mainly volcanic rocks of variable composition, volcanic/pyroclastic sediments, and alluvial. *Demis et al* described the soils of the study area as volcanic with thin layers of organic soil in few places. The parent rock of both types contains high levels of sodium resulting in the soda lakes of the Rift Valley. *Atkilt et al* (2001) described the soils of the volcanic plain as well drained to somewhat excessively drained, very deep loams to clay loams, with non-calcareous to moderately calcareous top soils, mostly dominated by volcanic ashes and glasses. Soils are generally shallow, sandy, and rocky with volcanic deposits dominating.

2.4 DRAINAGE

The Central Rift Valley forms an important catchment area for the drainage from the two forest stands on both margins of the rift. The Nyandarua Mountains to the East (3960m) and the Mau Escarpment to the West (300m) each drain into one of the three central rift lakes: Nakuru, Elmenteita, and Naivasha. Due to its shallowness, Elmenteita fluctuates greatly not only in water level but also in alkalinity and therefore can only support fish at certain times. The lake is a shallow, small, saline one that is fed from the rivers Mbaruk and Mereroni. In recent years, inflow from the Mereroni River has decreased significantly as a result of increased upstream water withdrawal. There is also some inflow from hot springs located on the South-eastern part of the lake while subsurface flows from Lake Naivasha also add to water levels (Soysambu Management Plan).

2.5 COMMUNITY DEMOGRAPHICS

It is estimated that over 37,000 people live around the Soysambu Conservancy, spread out over 13 communities. Another 235 people live on the Estate in their capacity as employees. The Conservancy defines communities as those found within five kilometres of the boundary. In addition, there are several small settlements found to the south and west (Ol Jorai and Elmenteita). The main road between Nairobi and Nakuru is one of the heaviest used roads for transport to and from Uganda and runs along the eastern boundary of the Conservancy.

2.6 SOYSAMBU CONSERVANCY

2.6.1 Lake Elmenteita

Lake Elmenteita is a unique ecosystem, a shallow alkaline lake lying on the floor of Kenya's Southern Rift Valley It was declared Kenya`s fifth Ramsar Site in 2005. The catchment areas of the lake are found on Eburru mountain range, Bahati, Mau and the Aberdare forest, which form a very important water run off area for the lake.

Greater flamingos foraging on algae in Lake Elementeita, an Important Bird Area (IBA)

The Lake is a part of a wider catchment basin where human population has been increasing rapidly in recent years. Saline lakes have few species types, but contain large numbers of microorganisms. This high biomass productivity of its major phytoplankton species, cyanobacterium 'Spirulina' *Arthrosporia fusiformis*, serves as the only food source of the Lesser Flamingo and the breeding area for the Great White Pelicans.

2.6.2 Vegetation

Open plains covering the conservancy are composed of mainly *Themeda triandra, Pennisetum stramenium*, *Cynondon dactylon,* and *Chloris gayana*. *Euphorbia candelabrum* are scattered overlooking the lake and in the rocky areas to the south. Acacia woodlands also extend around the mouths of rivers and these areas contains high diversity of tree and other plant species. *Acacia xanthophloea*is is dominant in alkaline volcanic, lacustrine deposits and areas of high saline levels. Dry bush land covers parts of the eastern and most of the southern and western sides of the lake, which is composed of *Rhusnatalensis, Sesbaniasesban, Lantana trifolia,* and *Vernonia spp.*

2.6.3 Wildlife

Soysambu Conservancy is mostly savannah and Acacia woodland. The area is dominated by grazing animals with zebra and buffalo being the biggest contributors to animal biomass. Four mammal species of conservation concern inhabit the conservancy; the Rothschild's giraffe *(Giraffa camelopardalis Rothschildi)*, Lion *(Panthera leo),* Leopard *(Panthera pardus),* and Colobus monkey (*Guereza guereza*). The conservancy is home to a population of around 100 Rothschild's Giraffes. The lake's riparian habitat has populations of Burchell's Zebras (*Equus burchelli),* Thomson's Gazelles (*Gazella thomsoni)*, and the Rothschild's Giraffes (*Giraffa camelopardalis rothschildi*). Other animals common around the lake are, African buffalo (*Syncerus caffer*), Spotted hyena (*Crocuta crocuta*), and Dik dik (*Rhynochotrogus kirkii).*

Thomson gazelle and African buffalo, part of the grazing community in the conservancy

2.6.4 Avifaunal Diversity

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3. Threats to Conservation

Despite many years of promotion and investments in conservation, Kenya and the East Africa sub-region continues to experience accelerated degradation of biological resources. Natural resources and ecosystems are continually degraded because there is a general perception that turning crops and livestock directly into income generates higher benefits than conservation. Although agricultural productivity in Kenya per unit of natural resources, labor, and capital invested is among the lowest in the world, a fact closely related to escalating poverty, food insecurity, and reduced real investments in managing the ecosystem are leading to loss of habitat and biodiversity. The major threats include:

Habitat loss and fragmentation: This is an important cause of known extinctions. Species have specific food and habitat needs. In the future, the only species that survive are likely to be those whose habitats are highly protected, or whose habitat corresponds to the degraded state associated with anthropogenic activities.

Agriculture: The Central Rift Valley has a lot of agriculture both arable and livestock. These threaten biodiversity in that agriculture is allocated land that grazing wildlife normally would utilize. Arable agriculture brings with it the use of fertilizers and pesticides that often contaminate water bodies.

Biological resource use: Kenyans depend on their local environment for wood to use as fuel, which has a devastating effect on the environment as more and more wood is needed as local populations grow. The practice is not sustainable and urgently needs to be addressed on a government level. Poaching is also rife in Kenya on many levels. Large-scale hunting by organized crime units operate within Kenya, mainly targeting rhino and elephant. Small-scale hunting is rife within the Central Rift Valley, with Soysambu Conservancy being one of the victims.

Residential and commercial development: The Central Rift Valley has experienced growth in the housing, commerce, industrial, and tourism sectors. These have all contributed to more traffic, pollution, and the human encroachment on land. As always, when land is contested between humans or wildlife, humans come out on top. Residential development and an increasing population add to the demand for firewood, which has a negative effect on surrounding woodlands.

Infrastructure: Soysambu Conservancy, being located 2 km from the highway linking Nairobi to Nakuru and Uganda, experiences high levels of air and noise pollution. This pollution will have a dramatic effect on interrupting the movement of species and disrupting wildlife corridors. This can either scare animals away or force them to cross. This often ends in death.

Pollution: Caused by chemical contaminants that certainly pose a further threat to species and ecosystems. While not commonly a cause of extinction, it likely can be for species whose range is extremely small, and threatened by contamination.

Climate change: A changing global climate threatens species and ecosystems. The distribution of species (biogeography) is largely determined by climate, as is the distribution of ecosystems and plant vegetation zones (biomes). Climate change may simply shift these distributions but, for a number of reasons, plants and animals may not be able to adjust. The pace of climate change almost certainly will be more rapid than most plants are able to adapt to.

Lack of education and public awareness: A general lack of awareness of environmental issues have permitted a culture of lack of indifference amongst local populations. Without poverty reduction and education into the importance of natural resources and biodiversity for tourism, it is difficult to see local communities taking roles in protecting land and biodiversity.

Invasive plants: Soysambu, among other conservation areas in the Central Rift Valley, experiences high levels of invasive plants. A wide range of species can be found which often out-compete indigenous plants. With much of the land use taken up by agriculture and towns it is very important to keep the wild areas free from these alien species and allow for natural systems to flourish thus protecting the native species and those that depend on them.

4. Conservation Projects

The overall aim of this project is to participate in conservation and preservation of Kenya's biodiversity through information gathering and dissemination. This is the main reason why Projects Abroad has partnered with Soysambu Conservancy, both share the same vision in embarking on a partnership aimed at preserving biodiversity. Research and monitoring are two interrelated components of natural resource management and long term research and monitoring is desirable and necessary due to the dynamic nature of the ecosystem.

4.1 LION MONITORING/ CARNIVORE MONITORING

Aims and objectives

Currently there are reports that lion numbers in Kenya have been in steady decline in many areas, especially outside protected reserves. Lions are heavily persecuted and their wildlife prey base has reduced substantially. Therefore, conservation of habitat outside protected areas and promoting ways for lions and people to coexist is vital for their long-term survival. This monitoring program is designed to document information on population dynamics of the lions (*Panthera leo)*, their movements and levels of livestock interaction in the conservancy. This is an effort to manage the lions in an environment characterized by presence of livestock. This will provide data information to formulate prudent management and conservation guidelines for carnivores in the conservancy.

One of the female collared lions in the conservancy and spotted hyena

The monitoring program objectives are:

- To monitor lions movement in relation to livestock distribution
- To determine the population structure and growth over time
- To observe and document the level of interaction with other carnivores

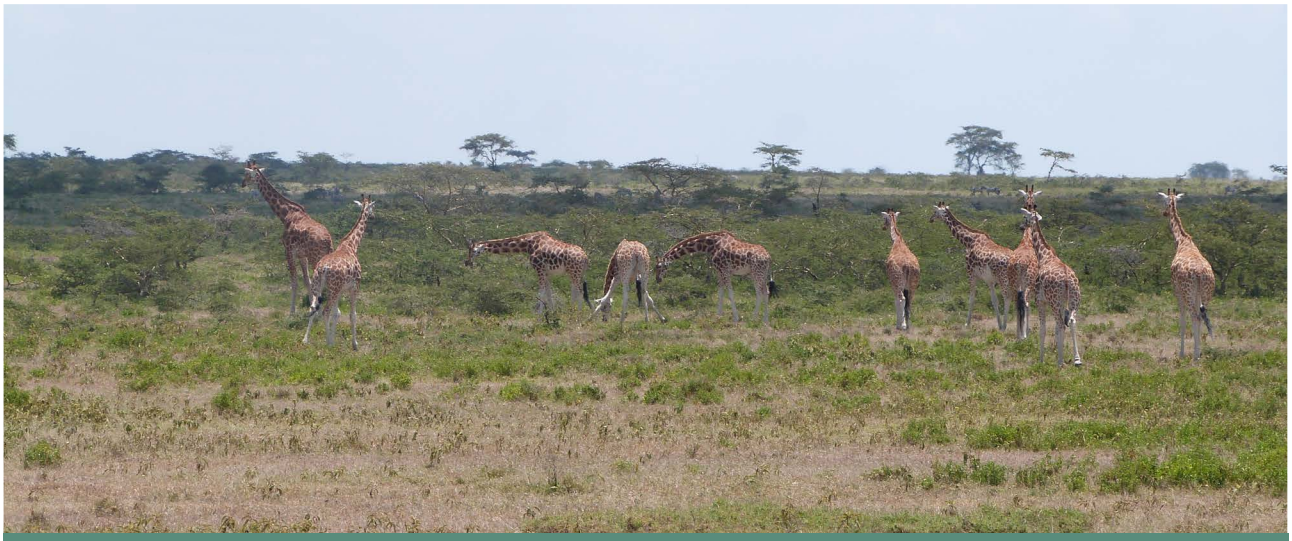
Methodology

To achieve this, two lions have been collared for monitoring purposes. This will be implemented by the conservancy team and Projects Abroad personnel. The pride individuals will be identified by use of whisker characteristics. Pencil sketches will be made of two upper rows of spots onto a schematic outline of a lion profile from both facial sides. Lions have whisker spots on their muzzle and upper lip. They are usually arranged in definite longitudinal lines and accompanied by dark spots, which is unique for each individual. The number and arrangement of the vibrissae do not match exactly. In lions there are about six longitudinal rows parallel to the upper lip. The upper two rows are best suited for recognition as described by *Rudnai and Pennycuick* (1970). The irregularity in spacing of vibrissae will be transferred to a schematized information plan. Individual photographs will be taken to improve and assist on recognition of individuals. Other lion

identification marks will be noted and inscribed on a full facial lion outliner sketch, e.g. torn ears, facial scars, and distinct body marks.

4.2 GIRAFFE MONITORING

The number of Rothschild's giraffe is not clear, with experts estimating around 1600 individuals. With such a small number, it is surprising IUCN have only made their conservation status 'endangered'. One can only assume that this status change has not come sooner due to the lack of research on the populations of the species. IUCN does recognize that this species is in decline and without conservation measures it will inevitably fall into the critically endangered bracket. To counter this decline, further research is required into the ecology of the species and its requirements in the wild along with the factors causing their decline.



Giraffes mourning the loss of one of the juveniles, which was preyed upon by lions

Aims

The overall aim of this project is to provide an accurate and scientific overview of the ecology of the Rothschild's giraffe.

Objectives

The ongoing giraffe monitoring in partnership with the conservancy and the Giraffe Conservation Foundation is geared towards conservation of this endangered species. Specifically, the team wants:

- To implement long term monitoring of the population through individual I.D. kits for each giraffe.
- To describe social structure and behavior of the Rothschild's giraffe
- To determine the key ecological requirements of the Rothschild's giraffe

Methodology

Giraffe populations will be monitored using an individual ID-based approach in the conservancy. The team will drive through the conservancy in a randomized manner, 3 days a week by vehicle, taking pictures of individuals. Giraffe are recognized by a combination of several features: skin pattern, distinctive body marks, age, sex, and tail size.

Volunteer photographing a giraffe during survey

The ageing will follow standard categories. The monitoring team will record a set of standardized parameters for each individual sighting including identity (if known), time, date, GPS location (UTM Coordinate system), group composition, behavior, age, and sex. Photos of each individual giraffe will be taken and used for identification. All data will also be recorded on a standardized data collection sheet, which will later be entered into a giraffe database.

4.3 MAMMAL INVENTORY

Aims and objectives

Soysambu Conservancy is home to over 40 species of mammals, with a population slightly over 10,000 individuals. Some are still un-observed within the conservancy and are very rare. To ensure that the different mammal species in the area are observed, the main mammal inventory of the conservancy is done through recording the mammals with the usage of camera traps. Camera traps are a valuable means by which to survey secretive wildlife (*Dreibelis*, 2009). They are non-invasive, effective, and can be deployed long-term. This technique is of great importance in the study and inventory of nocturnal and shy animals, especially leopards, hence the importance of the study in this conservancy. In order to achieve a more complete and reliable overview of the conservancy's wildlife the results of this study are combined with a survey on animal signs, being tracks and scats, which is conducted on a bi-monthly basis.

Lion captured by a motion sensor camera

Motion sensor cameras are used for the study. The cameras use a delay of five minutes between consecutive photographs. Cameras were set for 24-hour operation. Standard sensitivity was set and all cameras were set to record time and date.

The need for intensive carnivores' studies in the conservancy makes the use of this technique crucial, especially in terms of determining presence, monitoring population trends, and assessing population density.

Species identification
Mammalian species present at each of our sites and transects will be identified and recorded on a data sheet and field guide (Mammals of East Africa by Chris & Mathilde Stuart) will be used as reference.

4.4 MONITORING OF BIRDS

There is an urgent need to know more about the bird species within the conservancy. Information regarding the population sizes of individual species can be used to set priorities, allowing conservation efforts to be focused on those species most in need of attention. Over 450 species of birds have been recorded both in Lake Elmenteita and in the conservancy with at least 69 water birds and 29 species of Palearctic migrants. Some are in the endangered, threatened, near threatened, and vulnerable category. Some of the birds recorded include: Grey crested helmet shrike (threatened), lesser flamingo (threatened), secretary bird (vulnerable), and Jackson's widowbird (near threatened) Birds are important ecological indicators and their monitoring and inventory will provide crucial information on the health of the eco-system.

Aims

- To determining species abundance and diversity
- To continue our targeted inventory for bird taxa
- To be able to identify what species are of conservation concern
- To act as a basis for further study.

Pelicans use the lake as breeding ground

4.4.1 Birds of Lake Elementeita

Three quarters of the shores of Lake Elmenteita lie in Soysambu conservancy. This lake is a Ramsar site (wetland of international importance) and an Important Bird Areas (IBA) as well as a safe haven for local and migratory birds. This site was made a UNESCO site in 2011. We will be conducting surveys and monitoring in close collaboration with other organizations. This data is very crucial in the management and conservation of this fragile ecosystem.

Methodology

Birds are surveyed by observation once every week. The survey team drives along the shoreline counting and recording the species. The birds are identified using bird field guides: Birds of Kenya and Northern Tanzania. All birds spotted are identified and added to the species abundance and diversity database

4.5 WILDLIFE CENSUS

The conservancy is home to various animal species. To better understand the population dynamics of these species, bi-annual (wet and dry season) counts and monthly sample counts are some of the important activities that will be undertaken. This will help the conservancy management know the population status of wildlife in the conservancy. This also determines population size and structure and monitors changes in wildlife population dynamics.

Total counts

This entails counting all animals in the conservancy; counts will be conducted in dry and wet season (bi-annual) in the study area. Blocks and sub-blocks with teams conducting animal counts in the area allocated to them by the management. The study will be done during a period of three hours to avoid double counting. A report will be compiled from the data.

Sample Counts

Road counts/ belt transects will be employed to carry out population studies. Monthly sample counts within designated routes will be carried out and the data will be entered in the database. The team will conduct monthly counts within a designated transect (road) inside the conservancy. The activity will be undertaken by driving along transects through the reserve and record the species numbers, sex, and age (young, adult and sub-adult). The collected information will be entered in the database and will be used to calculate how many animals of each kind are in the conservancy.

4.6 VEGETATION ASSESSMENT

Vegetation studies are important in assessing woody and herbaceous biomass and productivity within the conservancy. Vegetation communities are typically subjected to disruptive forces, the main one being grazing. Grazing ecosystems support large communities of grazers (artiodactyls and perissodactyls) hence grazing is the most important factor for rangelands vegetation. Palatable plants are the ones being utilized by herbivores, leaving the other species that are less palatable untouched. Continued defoliation of these species can lead to reduced occurrence of these species or even total elimination from the area, hence the need to monitor closely.

4.6.1 Woody vegetation

In East African savannahs', the Acacia species and other woody vegetation are an important source of food for small and large browsing herbivores. To sustain healthy levels of vegetation, wildlife conservancies need to monitor the impacts of herbivores on plants. At a glance, impacts are almost always immediately recognizable; the resilience of woody vegetation sharply contrasting to open savanna or stands of acacia trees stripped bare of leaves or bark. This program is geared towards monitoring the trees and shrub abundance, regeneration and diversity of the conservancy's plants. Data will be collected from 24 plots each being $100m^2$, measuring an area of $2400m^2$. The technique used, places the plots in varying locations and habitats in the conservancy. This allows for a maximum result in capturing the vegetation diversity in the conservancy.

The aim of this study is to quantify the impact of browsers on woody vegetation and producing a preliminary quantitative assessment. This assumption leads to the hypothesis that a sample data set of woody vegetation structure taken from non-exclusion zones will demonstrate reduced morphology with regards to tree height, trunk diameter, and regeneration; the result of higher browsing pressure. Proposed long-term study may furthermore be useful in determining seedling regeneration. This will make it possible to project changes in woody vegetation structure.

Parameters related to vegetation structure, complexity, diameter at breast height (DBH), height, species composition, and diversity are evaluated along the pre-determined transects and plots. DBH for tall and small trees are measured, while tree heights are estimated and saplings counted. The following calculations will be done: relative density and percentage cover.

Aim and objective

Vegetation monitoring will allow us to determine and monitor changes

- Changes in vegetation cover over time
- Changes in vegetation composition (cover, species composition, and palatability) and cover inside the conservancy

Technique

PCQ will be used to assess the woody vegetation. 4 transect each covering 3kms will be surveyed and monitored for plant species composition and diversity. Along transects, 20m x 20m plots will be established after every 200m. Within the established plots all the woody plant species will be identified and classified according to families. DBH for tall and small trees will be measured by use of a DBH tape while tree heights will be estimated by use of survey rods. The following calculations will be done: Relative density, absolute density/km^2, dominance, relative frequency and importance value. Signs of giraffe browsing will be observed.

4.7 TREE NURSERIES

Environmental conservation and restoration is eminent in Nakuru County with special emphasis on Lake Elementeita basin which has undergone un-sustainable harvesting of tress. The solution to these already

rooting problems requires establishment of tree nurseries. This will contribute to resilience and mitigation of climate changes which of the biggest challenges in sustainable development. These tree nursery will produces trees for agro-forestry efforts in the surrounding communities. This is to compliment the government's efforts in undertaking this noble exercise.

Tree planting in neighboring school and Elementeita dispensary

Aims

- To curb desertification in the area which is semi- arid
- To provide fuel wood
- To teach volunteers and communities about agro-forestry

4.8 ENVIRONMENTAL EDUCATION AND TRAINING

The target group for this program will be community members and high school and primary school students. The main goal is to ensure information on wildlife and environmental conservation is imparted to the community members and next generation of leaders who are the students. The project will be rolled over in the neighboring community and schools around Soysambu Conservancy.

The program will expand to other areas with an expansion of three schools more each year. This is an important area in trying to garner the support of the community members and minimize the intrusion into the conservancy for illegal activities and also create a positive attitude toward nature and wildlife conservation. Projects-Abroad personnel will develop a conservation education and environmental program to be implemented through the following:

- Conservation videos/films and posters on Key species and habitat conservation (Wetland, Giraffe, Lions, and Birds) on importance of wildlife (direct and indirect benefits).
- Organizing community and schools educational field trips (Biology)
- Tree nurseries establishment

These programs will be geared at solving the ever-growing social and environmental challenges.

Volunteers and staff at an orphanage where they made donations

4.9 ANTI-POACHING CAMPAIGNS/DE-SNARING

Illegal poaching of bush meat is one of the major contributors to biodiversity loss and species extinction in Africa and has been a major challenge in wildlife conservation inside and outside of Kenya's protected areas. The driving force has been the need for cheap source of protein and hence trade in wild meat. The conservancy borders human settlement where there is a great need for a cheap source of protein. As a result, poaching can be an attractive method for some to attain game meat. Warthogs, buffalos, antelopes, and zebras are the main species targeted.

Snares that are placed in the conservancy are a threat to all animals in the area including the endangered giraffe (sub) species. The volunteers and the rangers will be removing snares twice a month and monitoring the poaching incidents. The aim is to reduce threats to wildlife from poaching hence, creating a secure environment for wildlife, which will lead to a natural increase in wildlife numbers and will boost existing wildlife populations.

Volunteers with a collection of wires after a successful de-snaring activity

4.10 ALIEN SPECIES CONTROL AND MANAGEMENT

Alien species are those species that are not indigenous to SWC. These have the potential to cause a disturbance to the ecosystem and also a major problem for conservation. Already encountered invasive plant species, for instance, *Datura stramonium,* have a seed bank that in favorable conditions can last viable for many years. These plants will be mechanically removed before reaching the fruiting stage to mitigate the spread. The program therefore will run for years, eradication will be used to monitor success. s a great need for a cheap source of protein. As a result, poaching can be an attractive method for some

4.11 OTHER ACTIVITIES

Fence building and repairs

Volunteers helping with fence construction and repair

Lake shore clean-up: Human activities have intensified around the lake shores and also the rivers are flowing into the lake with litters which end up in the wetland posing a threat to the integrity of the lake and what its famous for — its flamingos and pelicans. To minimize this threat volunteers get involved in a monthly clean up exercise. The litter collected is weighted and recycled others are disposed appropriately.

Volunteers and staff doing a clean-up at the shores of Lake Elementeita

Roads Maintenance – As with any protected area, roads are essential but difficult to maintain. They constantly need maintenance on the surface and to keep back the encroaching bush and run-off rain water.

Old Fence Removal – As the land use of the area has changed from agriculture to a wildlife reserve there are still the remains of old wire fences. This desolate wire can cause injury or death to wildlife, so it must be removed.

Sports - Our programs are also geared towards supporting sports in schools within the conservancy

Mbogo primary school after the sports, uniform, volleyball and football gear donation

5. Implementing the Plan

As Projects Abroad places volunteers, interns and professional into hundreds of projects worldwide, it is vital that these resources are deployed in a way that utilizes their strengths and coincides with the aims and objectives of the project.

6. Reporting on research

When data sets are sufficient, reports will be peer reviewed by experts with the aim of publication in scientific journals. The project will also produce an annual report outlining progress and recommendations. The project will also feature in Projects Abroad's Conservation Annual Report, made available to the public through a wide range of media.