CONSERVATION STRATEGY FOR

SABLE ANTELOPES

(Hippotragus niger roosevelti)

IN KENYA

KENYA WILDLIFE SERVICE

Acknowledgements

Many people and institutions participated synergistically in the formulation of the national Sable antelope conservation strategy. The Kenya Wildlife Service was instrumental in convening the first key stakeholders' meeting that culminated in the constitution of the national Sable antelope conservation taskforce. The taskforce members (Dr. Charles Musyoki-KWS, Neema Suya-WWF, Mwakutunza S. Mwarabu-Shimba Hills Forest Guides Association, Hamisi Salim Dzila-SHICOFA, Paul Musila-Mwaluganje Elephant Sanctuary, Francis Mutuku-KWS/KCDP, Shimba Hills Senior Wardens-Aggrey Maumo, Tom Amisi Amulavu, Richard Lemarkat, Jacob Mwanjala and Mohamed Kheri, Gideon M. Amboga-Baobab Trust, Sabine Baer-LaFarge Ecosystems, Abdul-Aziz Abdallah-Pollmans, Rahab Livu- Shimba Lodge, Dr. Samuel Andanje-KWS and Dr. Mohamed Omar-KWS), Dr. Fredrick Tamooh-KWS, Philemon Chebet-KWS and Peter Murimi-KWS are all acknowledged for their invaluable time, expertise and contributions towards the entire process.

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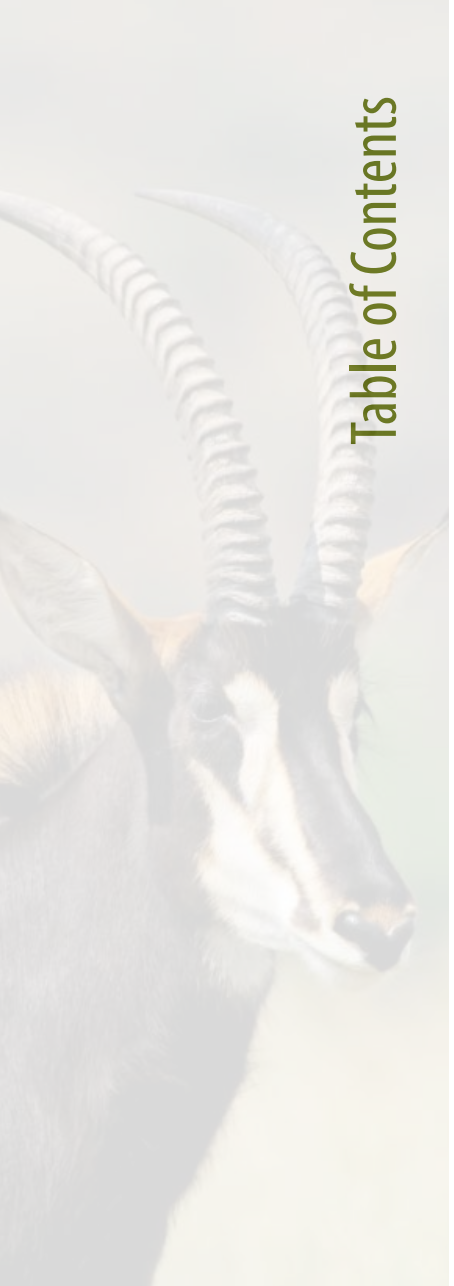

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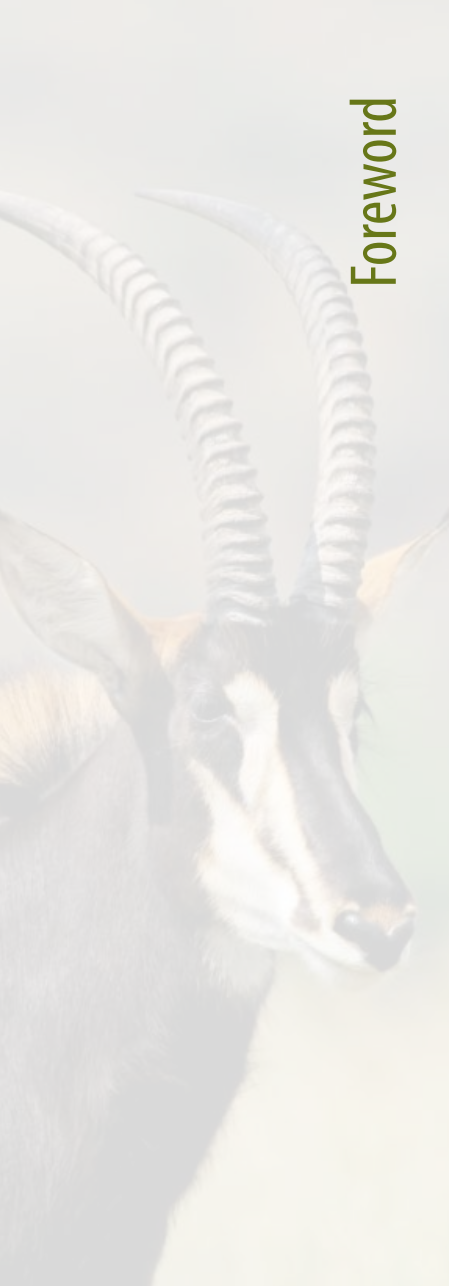
Abbreviations

KWS	Kenya Wildlife Service
KFS	Kenya Forest Service
SHIFOGA	Shimba Hills Forest Guards Association
SHICOFA	Shimba Hills Community Forest Association
IUCN	Internation Union for the Conservation of Nature
WWF	Worldwide Fund for Nature
NGO	Non-Governmental Organisation
CITES	Convention on International Trade in Endangered Species
GEF	Global Environment Facility
KCDP	Kenya Coastal Development Project
SHNR	Shimba Hills National Reserve
NEMA	National Environment Management Authority
KARI	Kenya Agricultural Research Institute
KEPHIS	Kenya Plant Health Inspectorate Service
WCK	Wildlife Clubs of Kenya
WARMA	Water Resource Management Authority



Foreword

The Kenya Wildlife Service (KWS) is a government institution established by an Act of Parliament (Cap 376) with the mandate to conserve and manage wildlife and their habitats in Kenya. In Kenya, Sable antelope is endemic to Shimba Hills National Reserve. KWS has endeavoured to curb threats facing Sable antelopes through conservation partnerships, investment in infrastructure and personnel. This progress has been made possible by the Government of Kenya with support from local and international conservation partners.

In the past, Sable antelopes were abundant and widely distributed in Kenya's coastal forests, and there was least concern regarding their population status and conservation. However, in recent years, various threats, in particular, anthropogenic factors have led to loss of suitable habitats and overall decline in numbers of Sable antelopes. The national Sable antelope conservation taskforce spearheaded the process of formulating this strategy that culminated in a national workshop that was attended by the species' specialists, managers from governmental and non-governmental conservation organisations, local communities representatives' and community based conservation groups. Inclusion of all stakeholders was an important recipe in ensuring that the strategy is owned and accepted by all.

The strategy has four key components that guide its implementation; the vision, goal, objectives and activities. KWS recognize and appreciate the input and efforts of all stakeholders in the conservation and management of Sable antelopes. Successful implementation of the strategy will ensure that the species populations and habitats are conserved and managed. This will require the participation and collaboration of all stakeholders (the government, donors, the private sector, NGOs and the community).

We appreciate the financial support provided by World Bank and Global Environment Facility (GEF) through, the Kenya Coastal Development Project (KCDP) in developing this strategy as well as supporting some of the proposed actions. We look forward to supporting the full implementation of the activities in this document as a sign of commitment to the future of our coastal forest ecosystems and the rich biodiversity.

Dr. Richard Lesiyampe, HSC
Principal Secretary
MINISTRY OF ENVIRONMENT, WATER AND NATURAL RESOURCES

Preface

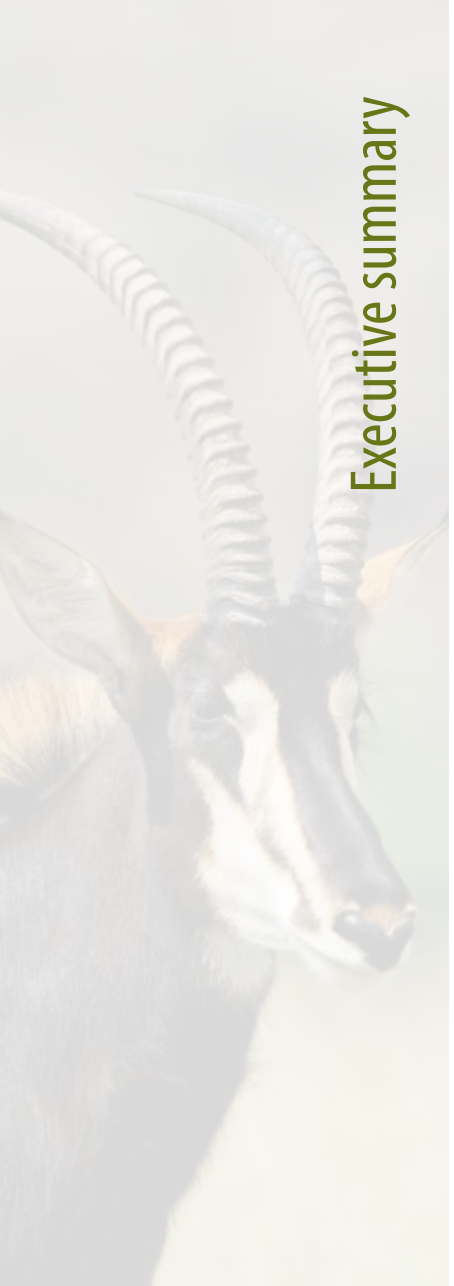
The Sable antelope *(Hippotragus niger roosevelti)* is regarded a rare species, and is currently listed as "least concern" under the International Union for the Conservation of Nature (IUCN) Red List of Threatened Species. However, the declining numbers in its former range in the last 30 years could lead to a "threatened" listing in the near future. Sable antelope use to occupy grasslands and scrub lands over much of central and southern Africa, with the northern most race H. niger roosevelti occupying the coastal regions of eastern Africa. The populations are now much reduced, with at least one sub-species H. niger variani thought to be extinct.

In Kenya, a remnant population exists in the Shimba Hills National Reserve, reported as early as 1975. Anecdotal records suggest that Sable antelope existed outside this area over the past 20 years. Earlier reports indicate small numbers in other areas, most notably in the sectors west of Malindi and west of Shimba towards the Tanzanian border (Lunga Lunga near Vanga). The population size has declined from approximately 265 individuals in 1960s to ~56 in 2012.

Ecological factors affecting *H. niger roosevelti* have been documented widely. Subsistence poaching may account for some of the loss, as animals spend considerable amounts of time on the periphery or even outside the reserve in populous and agricultural areas as their dispersal areas. The declining numbers of Sable antelope in Shimba Hills National Reserve can be attributed to a myriad of factors namely; diseases, drought-caused food shortages, habitat loss and degradation, subsistence poaching, inbreeding, predation and neonatal mortality. In order to restore the declining population, there is a need to address both the current and the potential threats affecting the survival of this locally endemic antelope.

In an effort to address these challenges, the KWS constituted a national task force to formulate the Sable antelope conservation strategy. This was made possible through financial support from World Bank and Global Environment Facility (GEF) through the Kenya Coastal Development Project (KCDP). This conservation strategy will guide efforts to conserve the Sable antelope in both the short and long term goals. The implementation of this strategy will require resources. Hence, we call upon donor organisations and stakeholders to support in actualizing its implementation.

William Kibet Kiprono, MBS
Director
Kenya Wildlife Service



Executive summary

The Sable antelope *(H. niger roosevelti)* population has declined considerably in its former range in the past few decades. In Kenya, only a remnant population exists in the Shimba Hills National Reserve in Kwale County though earlier reports indicate Sable antelope existed outside this range over the past 20 years, notably in areas west of Malindi and west of Shimba Hills National Reserve towards the Tanzanian border. Sable antelopes have also been sighted in both Tsavo West and Tsavo East National Parks. The population size for the Sable antelope has been declining from ~265 individuals in the 1960s to ~56 in 2012. This downward trend has been attributed to a myriad of factors ranging from diseases, food shortage due to drought, habitat loss and degradation, subsistence poaching, inbreeding, to predation and neonatal mortality.

Sable antelope is classified as species of 'least concern' in the IUCN Red Data Book (IUCN, 2011) but is of great conservation concern at the national level in Kenya considering their alarming declining numbers in the recent past as well as their localized distribution. In recognition of the threats facing the Sable antelope, KWS found it necessary to formulate a conservation strategy in collaboration with other stakeholders aimed at reversing the downward trend and future survival of this species. This led to constitution of a Sable antelope conservation taskforce to coordinate the formulation of the national conservation strategy aimed at guiding the conservation efforts towards saving Sable antelope in Kenya. The strategy formulation process involved active participation of various key stakeholders from the local communities, relevant government agencies, different conservation organizations, religious community as well as media fraternity.

The vision of this strategy is to conserve an ecologically viable and resilient Sable antelope population for the benefit of Kenyans and the global community for posterity. Its goal is to restore and maintain robust and connected populations of Sable antelopes and enhance community involvement in their conservation.

The vision and goal will be achieved through five strategic objectives that focus on mitigating the threats facing Sable antelope as well as building a strong foundation upon which ongoing conservation efforts and programs shall be sustained. The strategic objectives will focus on habitat management, monitoring and diversification of Sable antelope population, protection, harmonization of existing management legislations, as well as stakeholders' participation in conservation of Sable antelopes.

The implementation structure for this strategy consists of four site committees based at Shimba Hills, Mrima, Kilibasi and Mwangea areas. These sites were chosen on the opinion that they once harbored Sable antelope. The Sable antelope Liaison Office established by the Kenya Wildlife Service shall be the central coordinating office responsible for oversight implementation of the strategy's actions.

Structure of the Strategy

The Sable antelope conservation strategy is divided into five chapters as outlined below:-

1. **Chapter 1** summarizes the main considerations in the Sable antelope conservation strategy's formulation process, highlights threats, objectives, action plan and its implementation. In addition, it states how the strategy is aligned to institutional, national (including the KWS strategic plan and the country's Vision 2030) and regional conservation and development initiatives. The chapter also focuses on the background to conservation planning for Sable antelope conservation in Kenya and situates the planning within the global, regional and national settings. It introduces the Sable antelope occurrence and the conservation measures in Kenya. Furthermore, the chapter outlines the initiatives by the Government through legislations to protect the Sable antelope as well as other local, regional and international initiatives. This section brings out the need for the national conservation and management strategy for Sable antelopes in Kenya.

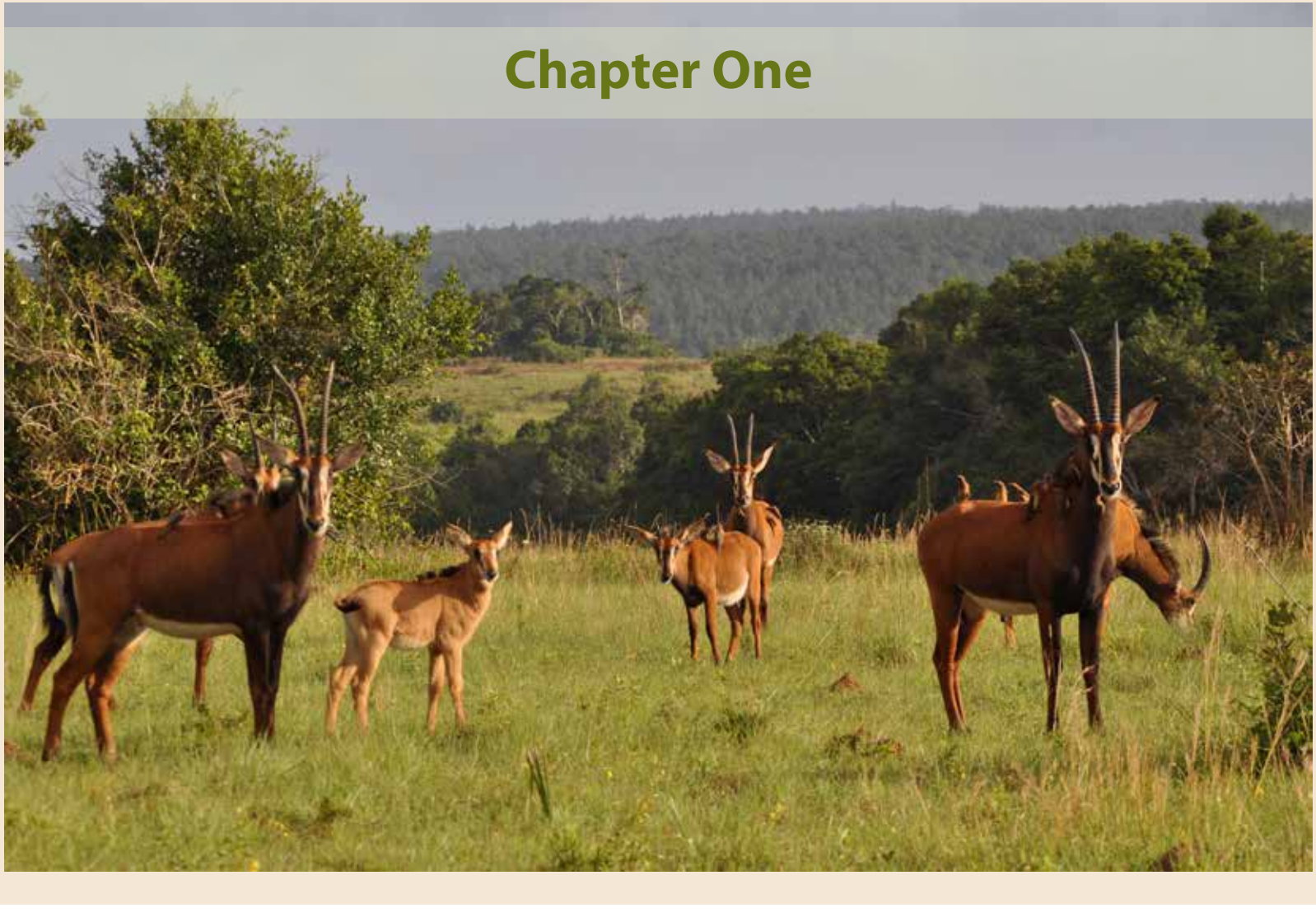
2. **Chapter 2** presents details of the distribution and status of Sable antelopes in Kenya. This section presents an extensive background of Sable antelope biology and ecology. Being the first national strategy for Sable antelopes conservation and management in Kenya, the chapter also provides a detailed literature review on ecological aspects of Sable antelopes, population status and distribution. This information provides a good insight to the general public by promoting understanding of the species and strengthening conservation initiatives.

3. **Chapter 3** discusses the threats facing Sable antelope in Kenya. Sable antelopes are experiencing pressure from a multiple of factors putting their population at risk. Although the main threats to Sable antelopes are primarily anthropogenic, the chapter further discusses other possible threats. Identification of threats was primarily based on published studies, field reports and national stakeholders group discussions. Finally, the chapter highlights the enabling conditions to counter the threats.

4. **Chapter 4** outlines the strategy's long term vision and goal. Five strategic objectives were formulated to address both the proximate and ultimate threats facing Sable antelopes alongside activities to address the threats.

5. **Chapter 5** summarizes the implementation structure of the sable antelope conservation strategy. Considering strategy formulation is a concerted effort by different stakeholders, the chapter further outlines the responsibilities of each stakeholder in the execution of the action plan. This is based on the fact that different institutions and stakeholders have unique mandate and capacity. Several committees are proposed with clearly defined terms of reference.

Chapter One



GENERAL INTRODUCTION

1.1 Background

There are five Sable antelope sub species namely; the giant Sable *(Hippotragus niger variani)* common in Angola, the southern Sable *(H. niger niger)* common in Namibia, Northern Botswana, South of the Zambezi River in Zimbabwe and Transvaal in the Republic of South Africa, the Kirk's Sable *(H. niger kirkii)* in the north of Zambezi in Zambia, Western Tanzania and eastern Angola, the *H. niger anselli,* (Grobler, 1974) occurring in Zambia east of the Muchinga escarpment, along the east side of Lake Malawi and into the southern tip of Tanzania and the Roosevelt Sable *(H. niger roosevelti)* occurring along the Northern Tanzania and the Kenya coastal hinterland currently restricted in Shimba Hills National Reserve in Kenya (Figure 1.1).

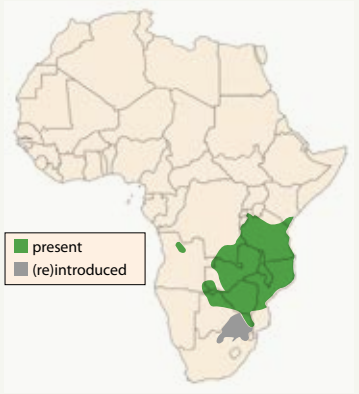


Figure 1.1: Map showing the range of Sable antelope (Map adapted from IEA, 1998)

Among these subspecies, the Giant (Angolan) Sable antelope is classified as Critically Endangered on the IUCN Red List of 2011 and is listed on Appendix I of CITES (CITES 2006). The populations are now much reduced, with the *H. niger variani* thought to be extinct. Sable antelopes have been eliminated from large areas of their former range due to a combination of factors. These include diseases, drought which lead to food shortages and habitat loss and degradation compounded by inter-species competition. Subsistence poaching poses an additional threat as its powerful stature and imposing horns make it a prized trophy animal to many big-game hunters. As human population continues to grow, the rate of habitat loss due to pressure for agricultural land and subsistence poaching are likely to grow (Animal Diversity Web, 2006; AZA Antelope Taxon Advisory Group 2006).

The Roosevelt Sable antelope *(H. niger roosevelti)* is regarded as a rare species, though the IUCN Red List of Threatened Species lists it as "least concern." The declining numbers could, however, lead to a "threatened" listing in the near future. The Roosevelt Sable has declined considerably in its former range in the last three decades. A remnant population exists in the Shimba Hills National Reserve on the southern coast of Kenya. Anecdotal records suggest some animals have existed outside this area over the past two decades. The Sable antelope use to occupy grasslands and scrub over much of central and southern Africa, with the northern most race *H. niger roosevelti* occupying the coastal regions of eastern Africa. *H. niger roosevelti* in Kenya were reported as early as 1975 to be restricted to the Shimba Hills National Reserve and the immediate vicinity (Sekulic, 1975). Both aerial and ground census reports on population status of Sable antelope in Shimba Hills National Reserve have over the years recorded a fluctuating population size with a downward trend from approximately ~265 individuals in 1960 to ~56 in 2012 (Anon., 1975; Ross, 1984; Litoroh, 1989; Andanje, 1994; Tamooh, 2009; KWS report, 2012). The ecological factors affecting *H. niger roosevelti* population recovery in Shimba Hills has been documented (Ross, 1984). The declining numbers of Sable antelope in Shimba Hills National Reserve can be attributed to a combination of factors namely disease, drought-caused food shortages, habitat loss and degradation, subsistence poaching, inbreeding, predation and neonatal mortality. In order to restore the declining population of the Sable antelope, there is need to formulate a conservation strategy. This strategy will come up with management and scientific mitigation measures to address the potential threats affecting the survival of this locally endemic antelope.

1.2 Framework for Species Conservation in Kenya

Sable antelope *(H. niger roosevelti)* is classified as species of "least concern" (IUCN, 2011). This classification is rather simple considering all Sable sub species are lumped together with the exception of subspecies *variani* (Giant Sable Antelope) of central Angola which is classified as "Critically Endangered". Generally, Sable antelopes are not threatened at the global, continental or regional levels. However, Roosevelt Sable antelopes are of conservation concern in Kenya considering their localized distribution coupled with their dwindling numbers in the recent past.

1.3 Planning Sable Antelope Conservation in Kenya

The population of the Sable antelopes *(H. niger roosevelti)* in Kenya has over the years declined from ~265 in 1960s (Glover, 1969) to ~56 in 2012 (KWS report, 2012). Despite this alarming decline, there has never been any focused conservation strategy to save the remaining population. In recognition of the threats facing Sable antelopes *(H. niger roosevelti),* KWS considered it necessary to initiate a conservation strategy. A national taskforce was constituted to spearhead the formulation process. The process involved a series of meetings and workshops involving experts and key stakeholders aimed at defining the strategic objectives, specific targets, activities and indicators for measuring the implementation progress.

1.4 Goal of Planning Workshop

The main purpose of the workshop was to develop a conservation strategy for Sable antelopes in Kenya. The main objective of the conservation strategy was to identify factors contributing to Sable antelope population decline and formulate appropriate measures for enhancing stable population growth in Shimba Hills Ecosystem. The process adopted was participatory and consensus driven, involving different partners to ensure that the strategy is jointly owned by all stakeholders so as to facilitate its implementation. The process involved participants' working groups organized and governed by common rules to enable timely and prompt formulation of the strategy. The group work focused on three conservation questions;

- What is the current status of the Sable antelope populations and their habitats (where are we)?
- What is the desirable population and habitat status (Where do we want to go)?
- What approaches should be used to achieve the desirable scenario (how can we get there)?

These questions are important in assessing the status of the Sable population, defining the conservation goals, needs and build consensus on the way forward.

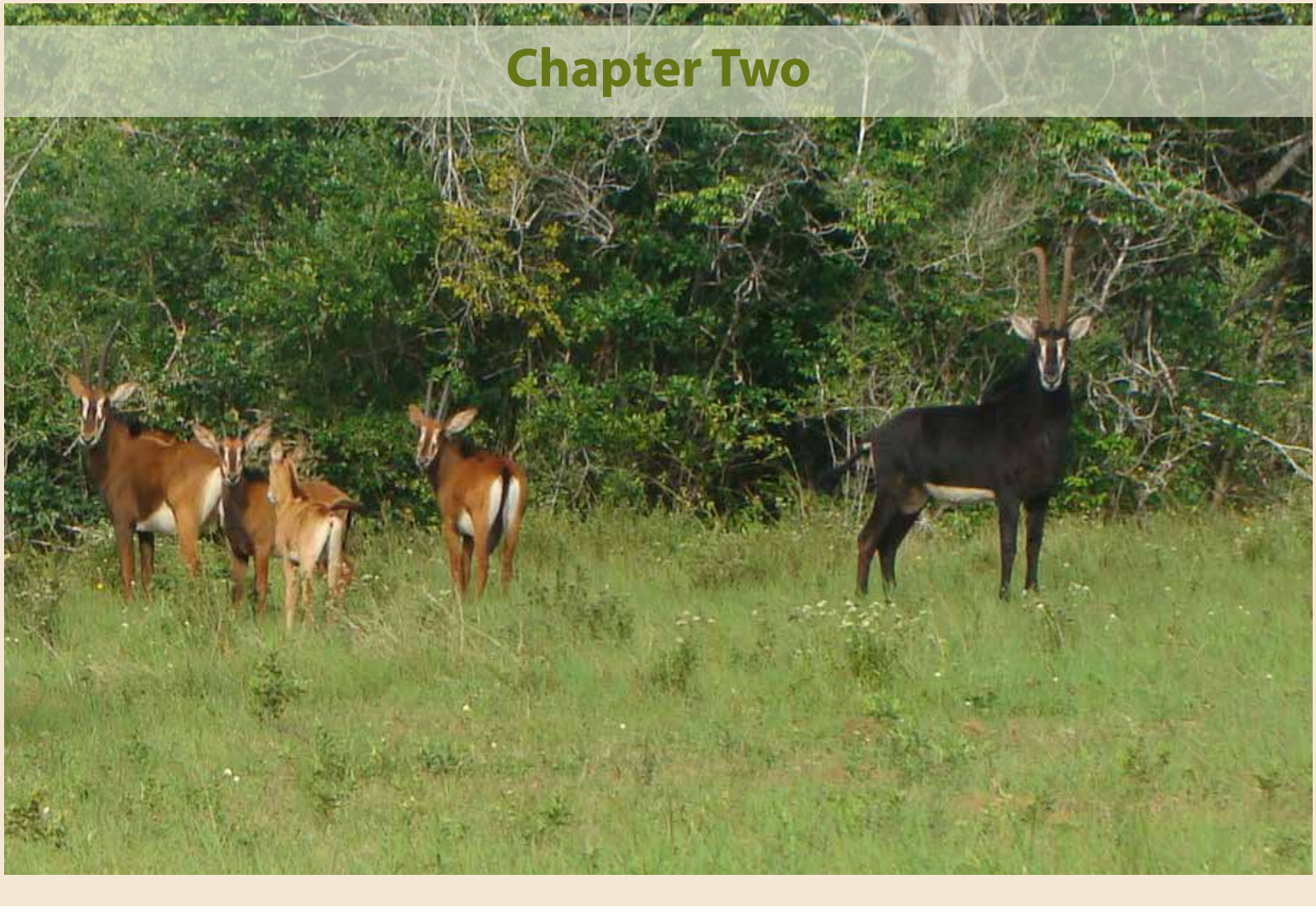
A herd of Sable antelope

1.5 The Kenya National Workshop

National stakeholders' workshop on Sable antelope conservation strategy was held on 15th November 2012 at Diani Forest Lodge in Kwale County, and involved key stakeholders from various sectors.

Stakeholders Consultation workshop at the Diani Forest Lodge in Ukunda

Chapter Two



DISTRIBUTION AND PRESENT STATUS OF SABLE ANTELOPES IN KENYA

2.1 Biology and Ecology of Sable antelopes

There are five Sable antelope sub species namely; the giant Sable *(Hippotragus niger variani),* the southern Sable *(H. niger niger)*, the Kirk's Sable *(H. niger kirkii)* the H. niger anselli, and the Roosevelt Sable *(H. niger roosevelti)* (Grobler, 1974). Kenya hosts the sub species Roosevelt Sable (*H. niger roosevelti)*

Taxonomy

Kingdom: Animalia
Phylum: Chordata
Subphylum: Vertebrata
Class: Mammalia
Order: Artiodactyla
Family: Bovidae
Subfamily: Hippotraginae
Genus: Hippotragus
Species: ***Hippotragus niger roosevelti***

2.1.1 Morphology

Adult male Sable antelope weighs ~238 kilograms with a body height ranging between 116-142 centimetres while adult female weighs ~220 kilograms but slightly shorter than male (Estes, 1993). Male Sable antelope carry massive and curved horns ranging between 81-165 centimetres in lengths, while those of female range between 61-102 centimetres. Generally, mature bulls have black coat coloration while females and young are chestnut. Most Sable antelope have white "eyebrows", a rostrum sectioned into cheek stripes, white belly and rump patch. Young under 2 months typically are light brown (Estes, 1993).

2.1.2 Social Organization

Sable antelope is a gregarious species, typically occurring in herds of 20-25 individuals (Skinner & Chimimba, 2005). The herds are normally composed of a dominant adult bull, adult cows, sub adult and juvenile females, young bulls (normally younger than 24 months) and calves (Bothma & van Rooyen, 2005). Sable herds display a strong social order. Within each breeding herd there is a dominant female who leads the herd (Skinner & Chimimba, 2005). The herd size is generally dependent on the habitat quality and season. At the height of the wet season when food is abundant, herds are smaller while during the dry season they form larger herds with up to 300 reported in Zambezi. Herds have a home range of 24–80 Ha. The principle requirement for home range should include a consistent water source but typically overlaps several male territories. Sable antelope breed seasonally, corresponding the offspring birth with high food abundance (Skinner & Chimimba, 2005).

Sable Antelope form matriarchal herds comprised of adult females, immature males and females, and calves. The highest-ranking female within the hierarchy, is generally the oldest, healthiest, and darkest colored member of the herd (Thompson, 1993). Females usually undergo only one estrous cycle per breeding season. Gestation lasts 8 to 9 months and normally one calf is born during the end of the rainy season when long grass is available for cover. The mother stays concealed for the first week of the calf's three-week hiding phase. After the first week, the mother joins a maternal group. Females care for their young primarily by nursing them and hiding them from predators. Young are weaned at 6 months of age, usually towards the end of the dry season when the vegetation is lowest in protein and other nutrients. Females start to breed at 2.5 years old (Estes,1993).

Male offspring are usually driven out of the female herd by the territorial bull at around three to four years of age. The newly rejected male offspring joins a bachelors' herd, where they continue maturing and practicing their fighting skills. Often, bachelor herds range from 2 to 12 members. At the age of 5-6 years male ventures off the bachelor herd to find and establish a territory of his own (Skinner & Chimimba, 2005). Territorial bulls are aggressive and often fight with other adult bulls that enter their territory (Skinner & Chimimba, 2005;

Bothma & van Rooyen, 2005). The goal of territoriality is to protect the habitat with the best food and water resource that would attract females. The dominant bull uses urination and defecation scent markings along his territory's perimeter to deter other rival bulls. Overall, Sable antelope has a lifespan of ~20 years (Grobler 1974).

2.1.3 Prenatal and postnatal care

Female sable antelopes have elaborate behavioural strategies to protect its offspring. Generally, a female about to give birth typically isolates herself from the herd in a secluded location. Soon after giving birth, the mother cleans the calf, eats the afterbirth, nurses the calf for a short time, and finally moves the calf to throw off predators attempting to smell out the new-born. The mother stands at a distance, facing away from her calf and returns occasionally to the hidden calf for nursing. She searches visually first, then vocalizes to stimulate the offspring to stand up and reveal its location (Thompson, 1996). The calf will usually choose a new hiding location after each nursing as its urine and faeces odour attracts predators. A calf's scent glands do not function for the first few months of life, thus making the calf safe from predators. Calf remains solitarily hidden for the first two weeks of its life after which it is fully integrated with the herd. The calf is fully weaned and independent after 6-8 months of age (Thompson, 1996).

2.2 Habitat Requirements for Sable Antelopes

Sable antelope is an emotional species, making use of the woodland-grassland ecotone but are highly selective (Estes & Estes, 1974; Bothma, 2002). Sable antelope prefers fairly sparse open woodland with dense to medium–tall grass, but generally avoid areas of heavy grazing pressure (Bothma, 2002; Traill, 2003). Typically, Sable antelope are specialised grazers but occasionally feed on foliage and herbs particularly during dry season (Estes, 1993). During wet season, Sable antelope select leafy and palatable grasses, with the most important species being; Chrysopogon serrulatus, Panicum maximum, Heteropogon contortus and Themeda triandra, Hyperthelia dissoluta, Setaria sphacelata (Magome et al., 2008; Le Roux, 2010). One of the reasons for declining Sable antelope numbers could be their very specific feeding pattern. Typically, up to 90% of their diet constitutes grasses species. Past studies have confirmed shift in the home range, often grazing further away from water sources than other grazers (Traill, 2003; Rahimi & Owen-Smith, 2007). This could be a strategy to reduce competition from other grazers and take advantage of isolated resource patches. Sable antelope generally select high crude protein and low fibre diet, often making use of recently burnt patches with new grass growth, particularly during the dry season (Parrini, 2006; Magome et al., 2008). There have been conflicting reports however on the dependence of Sable antelope on permanent water sources. Many field guides and older scientific studies suggest that Sable antelope are highly water dependent, relying on water every day and never moving further than 2.5 km from a permanent water source (Skinner & Chimimba, 2005; du Toit, 1992). However, more recent study on habitat selection and range studies utilizing GPS collars have suggested that herds in the Kruger National Park may only drink every 2-3 days and may move up to 7km from water sources, particularly during the dry season (Rahimi & Owen-Smith, 2007).

2.3 Historical Distribution and Status

Historically, Sable antelopes were found throughout the African Savannah woodlands that once stretched from coastal Kenya to central Angola and extended down to South Africa (East, 1999). Generally, Sable antelope are listed as "least concern" by CITES with an estimated global population of ~75,000 individuals. About 75% of this population lives in protected areas, conservancies and private farms. The remaining 25% are widely scattered throughout natural habitat on the periphery of the protected areas. The protected areas in Africa continent with Sable antelope include: Shimla Hills National Reserve (Kenya); Rueda, Sellouts (Tanzania); Kafue and Mweru – Antipas (Zambia); Mattes Safari Area, Hwange (Zambezi), and Kazuma Pan (Zimbabwe) and Kruger National Park (South Africa) (Estes 1993; Figure 1.1)

2.4 Current Population Status and Distribution

In Kenya, Sable antelope is endemic to Shimba Hills National Reserve (192.5 km2). The population has declined alarmingly from ~265 individuals in 1960 (Estes, 1993) to ~56 individuals in 2012 (KWS report, 2012; Figure 2.1). The distribution of Sable antelope along the Kenyan coast extended north of Mwangea Hill near Malindi to south of Mrima Hill near the Tanzania border (Figure 1.1). Other areas where Sable antelope has occasionally been sighted include Ramisi and Lunga Lunga (an area between Shimba Hills and the Tanzanian border). In the recent past, occasional sightings have been made in both Tsavo East and Tsavo West National Parks (Andanje, 1994; Richard & Goss, 1995).

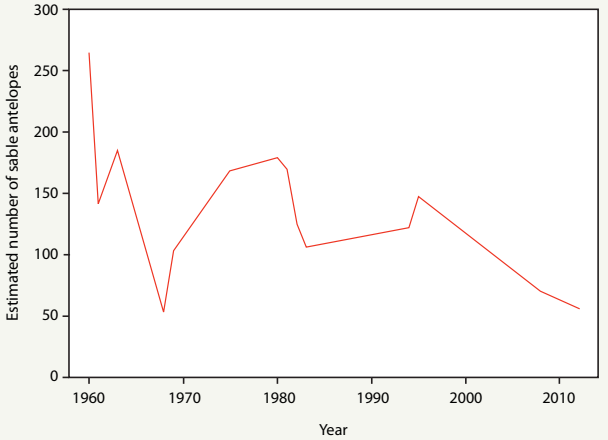


Figure 2.1: Population trend of Sable antelopes *(Hippotragus niger roosevelti)* in Kenya between 1960 and 2012.

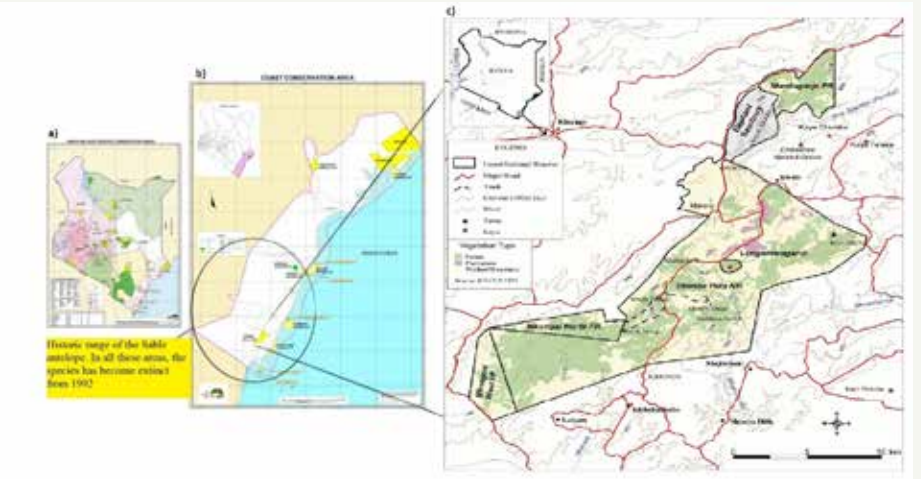
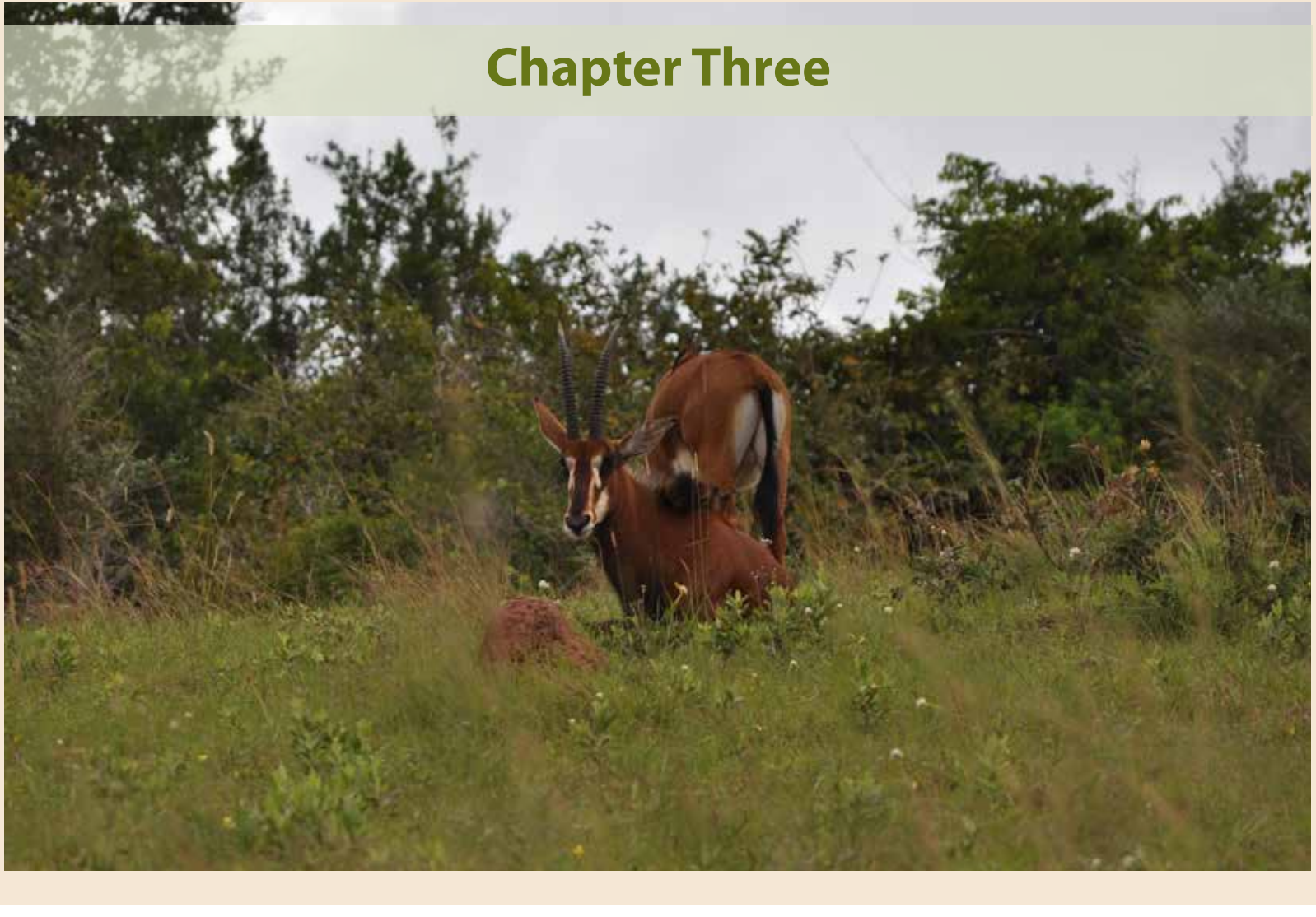


Figure 2.2: (a) Map of Kenya showing all KWS conservation areas, (b) Map of Coast Conservation Area, showing the historical range of Sable antelopes (Hippotragus niger roosevelti) (highlighted in circle), and (c) Map of Shimba Hills National Reserve, where the remnant population of Sable antelopes currently exists.

Chapter Three



THREATS FACING SABLE ANTELOPES IN KENYA

3.1 Proximate and Ultimate Threats

The major threats limiting population recovery of sable antelope in Kenya include diseases, malnutrition, poaching, inbreeding, poor habitat, interspecific competition and population manipulation. Past studies have shown that Sable antelopes are susceptible to various diseases with anthrax being the most serious (Pienaar, 1961). High elephant population in Shimba Hills ecosystem has been blamed for modifying habitat leading to change in grass composition due to trampling effects and loss of shade. Excessive burning regimes common in Shimba Hills National reserve result in shortage of dry season grazing areas thus limiting population performance. Increase in human population and associated land use change around Shimba Hills ecosystem have resulted in habitat loss as well as escalation of poaching menace. Other challenges impending population recovery of Sable antelopes in Kenya include; inadequate enforcement of legislation and overlapping mandates and policies. Following in-depth deliberations during the national key stakeholders' workshop, it strongly emerged that threats facing Sable antelope can be categorised into ecological and anthropogenic factors (Table 3.1)

Herd of Female Sable antelope

3.1: Summary of the threats facing Sable antelopes in Shimba Hills National Reserve"

Ecological Factors	Anthropogenic Factors
• Possible predation by Hyenas, Leopards and python • Diseases (anthrax, trypanosomiasis, rinderpest) • Speciation (population isolation) • Inbreeding (weak genetic pool) • Mineral deficiency • Invasive species • Possible impacts from the introduced species • Lack of documented information on carrying capacity for Sable antelopes • Declining elephant and buffalo population as key facilitators to Sable antelope grazing areas • Excessive/ unutilized grass biomass • Land use change in the dispersal areas • Loss of dispersal corridor • Lack of monitoring of the performance of water sources • Habitat loss to pine plantations (800ha) • Forest cover loss through illegal logging	• Poaching • Inadequate security patrols strategy and personnel • Inadequate local community collaboration with park management • Overlapping government conservation policies • Dual gazettement • Linient penalties on wildlife crimes • Lack of conservation area management plan to guide the mangers • Wildlife disturbances by human activities • Poor prescribed burning program • Increased extraction of resources by the community • Use of Sable products in community cultural practices • Emerging mining industry (mineral exploration and ultimate mining around SHNR and dispersal areas). • Changing community livelihood pattern • Lack of incentives to communities • Lack of monitoring program for the Sable antelopes • Illegal grazing within the reserve

3.2 Gaps and Constraints

A number of gaps and constraints have been identified as potentially impeding the conservation of Sable antelopes in Kenya. These include; weak legistlations, lack of law enforcement, linient penalties, lack of scientific studies, lack of community education and awareness, limited involvement of key stakeholders.

3.2.1 Legislation and Enforcement

In Kenya, wildlife conservation is governed by Wildlife (Conservation and Management) Act Cap. 376 of the laws of Kenya. However, the Wildlife Act is generally weak to enhance recovery of declining population of Sable antelopes due to its inadequacy in terms of scope, strength and form of penalties. There is need to amend the Wildlife Act in an effort to recognize Sable antelope as a species of special concern. Apparently, Wildlife Act bans trade/usage of wildlife products with little or no focus on habitat management. In addition, the Wildlife Act stipulates very lenient penalties to wildlife offenders thus acting as a weak deterrence to potential wildlife crimes. Besides, Shimba Hills National Reserve has dual gazzettement; as Forest Reserve and National Reserve, thus complicating law enforcement particularly on resource access and utilization. Other challenges affecting law enforcement in Shimba Hills include inadequate security personnel, lack of modern security and surveillance techniques.

3.2.2 Conservation Education and Awareness

There is need to embark on a serious conservation education and awareness campaign in an effort to enlighten the local communities on the importance of conserving Sable antelope. Indigenous knowledge plays an important role in conservation, hence there is need to acknowledge its role in Sable antelope conservation by incorporatimg communities' knowledge in the conservation education and awareness programmes.

3.2.3 Lack of Scientific Studies on the Sable Antelopes

Very little or no scientific knowledge exists on Kenya Sable antelope, thus posing huge challenges in conservation efforts. While the population structure of the remnant Sable antelope in Shimba Hills has over time been confirmed to be normal; as reflected by representation of juveniles, sub adults and adult individuals, there has been no effort to identify the threats and solutions to address the ever declining numbers. Therefore, there is need to fully understand the biology and ecology of Shimba Hills Sable antelopes in order to arrest complete decimation of the remaining population. In this respect, a regular monitoring programme is paramount. This conservation strategy has further identified priority research and management interventions to address the population recovery of Sable antelope. These include:

1. Study the population status/carrying capacity of Sable antelope in Shimba Hills ecosystem.
2. Develop Shimba Hills ecosystem management plan to address possible threats such as proliferation of invasive species.
3. Identify possible diseases and associated vectors affecting Sable antelope in Shimba Hills ecosystem.
4. Examine possible mineral deficiencies in Sable antelope.
5. Assess the effect of interaction between Sable antelope and human
6. Examine habitat interspecific competition between Sable antelope and other species particularly elephant, buffalo including the newly introduced species.
7. Assess impact of habitat degradation/habitat loss on Sable antelope.

3.3 Enabling Conditions

Despite the identified threats, gaps and constraints, there are strengths and opportunities that could enable conservation of Sable antelopes (Table 3.2). Besides, there exist comprehensive set of policies, legislations, regulations and international agreements promoting biodiversity conservation including Sable antelope (Appendix 4).

Table 3.2: Summary of strengths and opportunities

Strengths	Opportunities
• Existence of the Sable antelope in a protected area. • Existence of institutions and professional personnel to conserve and manage Shimba Hills Ecosystem. • Motivated and ethical personnel • Presence of good park infrastructure and technology (roads, electric fence, and radio communication equipment). • Wildlife Act	• Existence of a Sable antelope conservation task force • Political good will • Existence of partnership • Potential funding • Research and monitoring Sable antelope • Community involvement in conservation

Chapter Four

NATIONAL CONSERVATION STRATEGY AND ACTION PLAN FOR SABLE ANTELOPES IN KENYA

4.1 Background .

This chapter outlines the specific strategies, actions and activities aimed at enhancing Sable antelope conservation. The strategies were agreed upon during the national stakeholders workshop all aimed at addressing both short-term and long-term actions and activities. The strategies were formulated in an attempt to consolidate efforts and resources considering the existing conservation programs, threats, gaps and opportunities.

4.2 Vision & Goal

4.2.1 Vision

To conserve an ecologically viable and resilient Sable antelope population for posterity.

4.2.2 Goal

To restore and maintain robust and connected populations of Sable antelopes and enhance community involvement in conservation.

4.3 Strategic Objectives:

The vision and goal will be achieved through five strategic objectives that focus on mitigating the threats to Sable antelopes and building a strong foundation upon which ongoing conservation efforts and programs are to be sustained. New conservation programs are to be identified, formulated and implemented

4.3.1 Strategic Objective 1: Enhance ecological monitoring and management of the Sable antelopes and its habitats

Population recovery of Sable antelope in their natural range is of great concern. Sable antelope are facing serious threats including poaching and habitat loss owing to human encroachment in their natural habitat. Limited scientific studies and conservation efforts have been focused on Sable antelope in Kenya. Lack of regular monitoring programme for Sable antelope in Shimba Hills has particularly hampered population recovery. To save the remaining population requires a concerted effort of both the management and research.

In order to achieve this objective, there is need for an updated database on the population status of Sable antelope as well as conservation of its habitat.

4.3.1.1 Target: Assess Sable antelope habitat in shimba hills ecosystem.

Actions

i. Identify the Sable feeding habits.
ii. Identify and quantify the forage species preference.
iii. Analyze Sable forage species mineral content
iv. Establish the carrying capacity of the Sable antelope in Shimba hills ecosystem
v. Develop management plan for Shimba hills ecosystem.
vi. Evaluate the impact of pine plantation on the survival of Sable antelope in Shimba hills

4.3.1.2 Target: Establish Sable antelope monitoring program

Actions

i. Conduct annual census to establish population status.
ii. Establish the age and sex structures of the Sable antelope populations
iii. Identify the mortality causes of Sable antelope
iv. Establish and maintain database for Sable antelope.

4.3.1.3 Target: Determine effect of the introduced species on Sable antelope.

i. Determine interspecific habitat competition between Sable antelope and the introduced species
ii. Assess possible disease transmissions from introduced species.
iii. Assess the effect of introduced species on Sable antelope population recovery.

4.3.1.4 Target: Establish water use monitoring program.

Actions

i. Undertake an inventory of water resources in Shimba Hills National Reserve
ii. Monitor water flows
iii. Monitor water abstraction

4.3.1.5 Target: Determine the genetic diversity of the Sable antelope.

Actions

i. Conduct DNA analyses to confirm inbreeding possibility.

4.3.1.6 Target: Develop fire management plan.

Actions

i. Determine the effect of prescribed burning on sable feeding behaviour.
ii. Regularise prescribed burning program.
iii. Construct fire breaks inside and along the park boundary.

4.3.1.7 Target: Establish parasite control measures.

Actions

i. Carry out endo-parasites and ecto-parasites assessment of Sable antelopes in SHNR
ii. Develop and implement ecto-parasites and endo-parasites control measures
iii. Carry out epidemiological tests

4.3.1.8 Target: Determine the impact of mega herbivores on Sable antelopes in SHNR.

Actions

i. Establish foraging succession
ii. Determine impacts of major herbivores on the habitat structure

4.3.1.9 Target: Evaluate the impact of climate change on known Sable antelope ranges.

Actions

i. Analyze long term data on climate.
ii. Initiate long term vegetation monitoring.
iii. Establish weather monitoring station.

4.3.2 Strategic Objective 2: Diversifying Sable Antelope Population Distribution

Considering the current population status of the Sable antelope, it is critical to diversify their distribution. This can be achieved through establishment of Sable antelope breeding sanctuaries to enhance population recovery by restocking the historical natural habitats.

4.3.2.1 Target: Identify potential sites for establishing Sable antelope sanctuaries

Actions

i. Survey and document alternative Sable antelope potential habitats
ii. Conduct an ecological and socio economic assessment on the sites identified
iii. Consult with land owners of sites identified on private and communal land
iv. Establish Sable antelope breeding sanctuaries

4.3.3 Strategic Objective 3: Review and Harmonise Policies and Legislations.

A multifaceted government policies and legislations are in force with regard to conservation and management of coastal resources. However, the mandate of some policies and legislations are overlapping thus creating disharmony in their execution. Therefore, there is need to harmonise various policies and legislations to enhance conservation of Sable antelope and their habitats.

4.3.3.1 Target: Harmonize overlapping institutional policies and regulations.

Actions

i. Resolve the dual gazettement status of SHNR
ii. Gazette SHNR under the Wildlife Act.

4.3.4 Strategic Objective 4: Enhance Security and Surveillance for the Sable Antelope.

The major threat challenging population recovery of Sable antelope is subsistence poaching. To effectively curb this menace there is need to improve on infrastructure particularly the electric fence as well as intensify security surveillance. In addition, involvement of local communities in wildlife policing including Sable antelope is very critical.

4.3.4.1 Target: Improved security patrol and surveillance in SHNR.

Actions

i. Initiate targeted surveillance of Sable antelope.

4.3.4.2 Target: Embrace technology for security surveillance.

Actions

i. Mount surveillance cameras within Shimba Hills National Reserve.

4.3.4.3 Target: Enlist community scouts

Actions

i. Recruit and train community scouts in monitoring Sable antelope.

4.3.4.4 Target: Make the electric fence Sable antelope proof.

Actions

i. Modify the design of the Shimba Hills National Reserve electric fence in order to refrain Sable antelope from venturing outside.

4.3.5 Strategic Objective 5: Enhance Community Involvement and Linkages with Partners.

In order to reduce threats associated with human, the local communities living adjacent to SHNRneed to be educated and involved in wildlife conservation. This can be achieved through education and awareness campaigns, assessment of economic and cultural needs of the local communities. Besides, collaboration with other conservation partners will be critical in enhancing Sable antelope conservation effort.

4.3.5.1 Target: Establish socio-economic profile of communities neighbouring SHNR.

Actions

i. Carry out socio-economic studies around Shimba Hills ecosystem

4.3.5.2 Target: Establish Sable antelope community conservation committees.

Actions

i. Identify key community representatives for Sable antelope conservation committees.

4.3.5.3 Target: Enhance conservation education and awareness.

Actions

i. Conduct community outreach programs
ii. Conduct community exposure tours
iii. Conduct conservation meetings and barazas

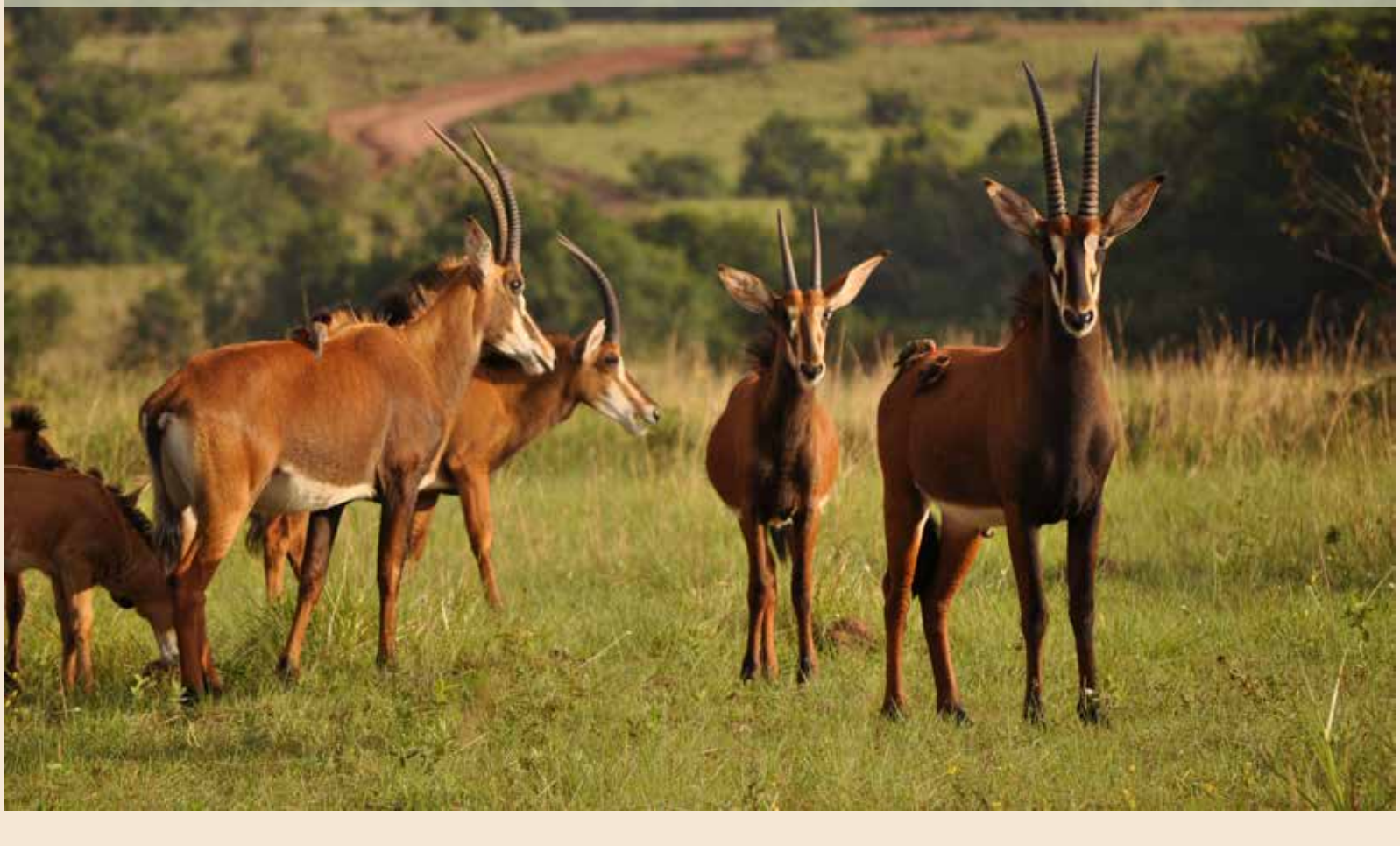
4.3.5.4 Target: Establish linkages with partners at national, regional and international levels.

Actions

i. Initiate memorandum of understanding with relevant partners and institutions locally and internationally
ii. Exchange visits to enhance information sharing.

Male Sable antelope

Chapter Five



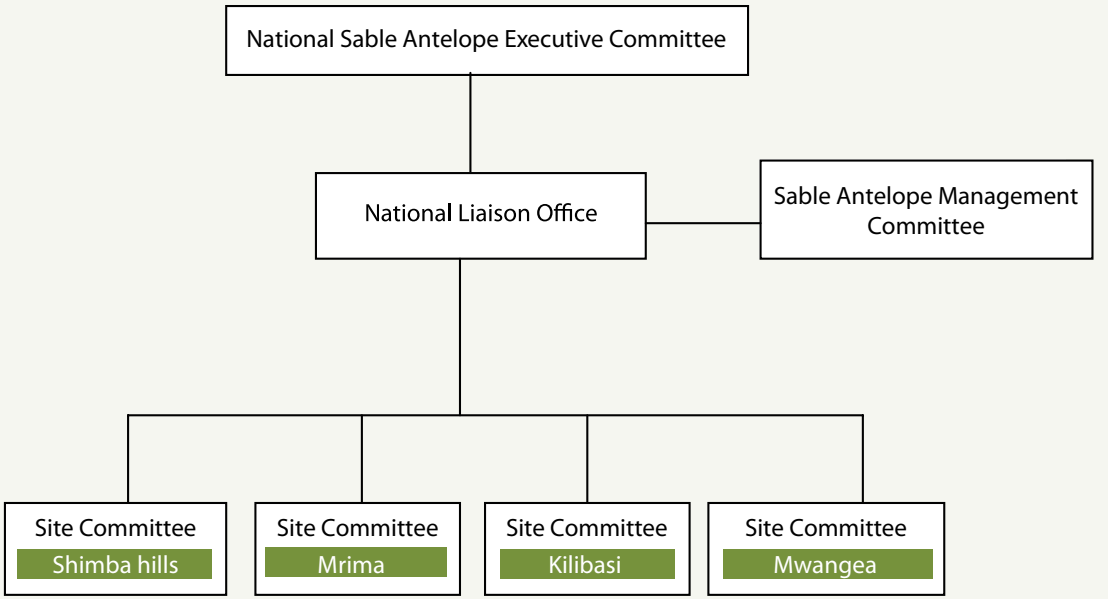
IMPLEMENTATION FRAMEWORK

For the ultimate desired goal to be achieved, effective implementation of this strategy is paramount. To achieve this, an elaborate structure comprising of a national steering committee, a technical committee, a liaison officer and site specific committees were constituted as illustrated in the organogram below. A detailed Terms of Reference for the various committees is stipulated in Appendix 5.

5.1 Endorsement

This strategy was endorsed by the stakeholders at a workshop held in Ukunda on the 15th November 2012. A list of the stakeholders present is shown in Appendix 1.

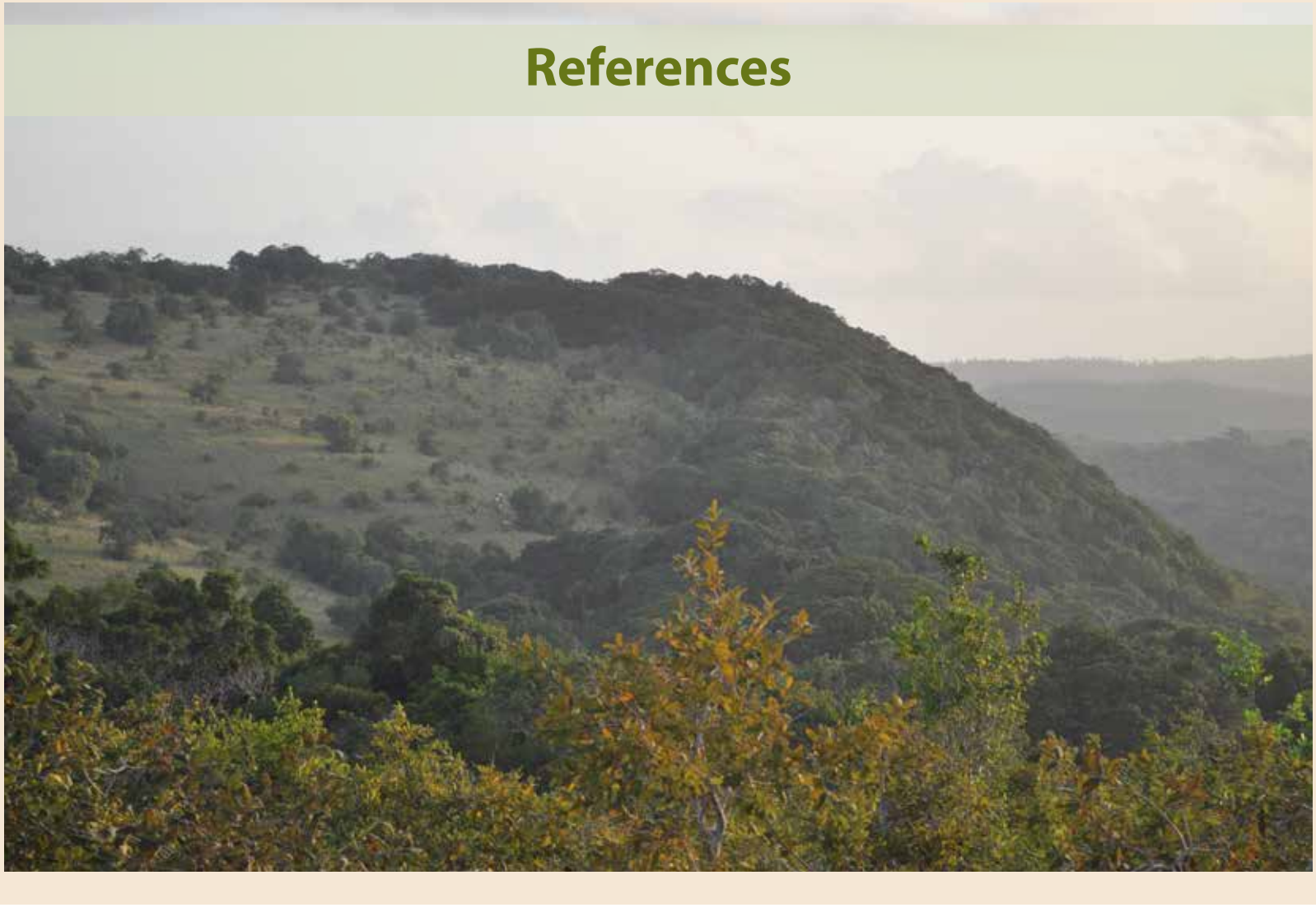
5.2 Implementation Structure



5.3 Shelf life and Revision of the National Strategy

This strategy will have a shelf life of five years upon when a review shall be considered based on the milestones achieved in regard to Sable antelope population recovery.

References



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APPENDIX 1

LIST OF PARTICIPANTS

	Name	Organization
1.	Rajab Massah	Office of the President
2.	S. Mwandango	Office of the President
4.	Peter Zanetti	Pilot/ Community Representative
5.	Onesmus Macharia	Mwaluganje Elephant Sanctuary
6.	Lonya Mwapitu	KCNR. Network
7.	Bintali Kibamba	Mwaluganje Elephant Sanctuary
8.	Michael Murithi	Kwale County Council
9.	Hamadi Mwaguta	Kenya Association of Tour Operators (KATO)
10.	Omari Chinago	Office of the President -Chief
11.	Justus Mulinge	Office of the President -Chief
12.	Jackson Nyambu	Office of the President
13.	John Voya	Community Member
14.	Said Mwakafadi	Office of the President
15.	Charo Lewa	Office of the President
16.	Bakari Swaleh	Community Representative
17.	Prelosa Juliette	Kaya Kinondo
18.	Salim Edward	Kaya Kinondo
19.	Nelson Lewa	Office of the President
20.	Hassan Salim	Community Representative
21.	Juma Mwadindima	Community Representative
22.	Omar Nzallah	Community Representative
23.	Josphat Mnzala	Office of the President
24.	Rama Janji	Office of the President
25.	Patroclus Nzula	Office of the President
26.	Jacquiline Benard	Kenya Wildlife Service
27.	Richard Lemarkat	Kenya Wildlife Service
28.	James Mwang'ombe	Kenya Forest Service
29.	Jeniffer Syokau	Kenya Wildlife Service
30.	Stephene Mwendwa	Kenya Wildlife Service
31.	Ivy Kiarie	Kenya Wildlife Service
32.	Ronja Weist	Kenya Wildlife Service
33.	John Kioko	Pasha community representative
34.	Kokoi Ibrahim	National Environment Management Authority (NEMA)
35.	Tima Dago	Kenya Wildlife Service
36.	Abdalla Salim	Office of the President
37.	Tsuma Mkinzi	Office of the President
38.	Mohammed Mwavasa	Community chairman
39.	Kwaka Chindoro	Community chairman
40.	Emmanuel Musya	Chairman-Lukore
41.	Micah Muema	Base Titanium
42.	Margaret Mwaniki	Office of the President
43.	Philemon Chebet	Kenya Wildlife Service
44.	Bernard Ochieng	Kenya Wildlife Service
45.	Collins Otieno	Kenya Wildlife Service
46.	Moses Minchil	Kenya Wildlife Service
47.	Simon Maganga	Kenya Wildlife Service
48.	Abudulai Golicha	Kenya Wildlife Service
49.	Samuel Andanje	Kenya Wildlife Service
50.	Robert Muasya	Kenya Wildlife Service
51.	Mohammed Omar	Kenya Wildlife Service
52.	Syrya Karisa	Kenya Wildlife Service
53.	Mwarabu Mwakutunze	SHICOFA
54.	Dr. Charles Musyoki	Kenya Wildlife Service

APPENDIX 2

AGENDA OF THE NATIONAL WORKSHOP

SABLE ANTELOPE STRATEGY NATIONAL STAKEHOLDER'S WORKSHOP HELD ON 15 NOVEMBER, 2012
DIANI FOREST LODGE, UKUNDA. TENTATIVE PROGRAM

Date	Time	Activity	Facilitator
Thur 15th Nov,2012	9.00am – 10.00am	Arrival, registration and introductions	Secretariat
		Opening remarks	AD CCA
		Workshop objectives	Dr. Omar
	10.00am -10.30am Review of the various chapters in the Draft Sable antelope strategy	Introduction (background information, framework and planning for the Sable antelope conservation in Kenya)	Dr. Omar
		Tea break	
	11.00am- 12.00pm	Biology and conservation needs of the species; distribution and present status of Sable antelopes in Kenya.	Dr. Andanje
	12.00pm- 1.00pm	3. Proximate threats facing Sable antelopes in Kenya	Dr. Musyoki
		Lunch break	
	2.00pm- 3.30pm	National conservation strategy and action plan for Sable antelopes in Kenya (vision, goal and strategic objectives) and implementation framework.	Dr. Musyoki
	3.30pm- 4.00pm	Way forward	Dr. Omar
		Tea break and departure	

APPENDIX 3

STRATEGIC PLAN AND ACTION PLAN LOGICAL FRAMEWORK

Objective	Target	Activity	Indicator	Actor	Timeline
Strategic Objective 1 Enhance ecological monitoring and management of Sable antelopes and their habitats	1. Assess Sable antelope habitat in Shimba Hills Ecosystem	Identify the Sable feeding habits. Identify and quantify the food plants	Current Sable antelope microhabitats in SHNR identified and mapped	KWS, KARI, KFS, KEPHIS, Masters and PhD students	3 years
		Identify and quantify the forage species preference.	Current Sable antelope food plants in SHNR identified and quantified		
		Analyze Sable forage species mineral content	Nutrient content of Sable antelope food plant determined		
		Establish the carrying capacity of the Sable antelope in Shimba Hills Ecosystem	Sable antelope carrying capacity known		
		Evaluate the impact of pine plantation on the survival of Sable antelope in Shimba hills	Report on the impacts of pine plantation		
	2. Establish Sable antelope monitoring program.	Prepare an ecosystem management plan	Management plan in place	KWS	1 year
		Conduct annual census to establish population status.	Numbers and herds established		
		Establish the age and sex structures of the Sable populations	Age and sex structure known		
		Identify the mortality causes of Sable antelope	Causes of Sable antelope mortalities identified	KWS, Masters students, PhD students	3 year

APPENDIX 3 cont

Objective	Target	Activity	Indicator	Actor	Timeline
		Establish and maintain database for Sable antelope.	Updated database		
	3. Determine effect of the introduced species on Sable antelope.	Determine interspecific habitat competition between Sable antelope and the introduced species	Level of interaction between introduced species and Sable antelope known	KWS, Masters students, PhD students	3 years
		Assess possible disease transmissions from introduced species.	Possible diseases and transmitters identified		
		Assess the effect of introduced species on Sable antelope population recovery.	Change in number of Sable antelope poached known		
	4. Establish water use monitoring program.	Undertake an inventory of water resources in Shimba Hills National Reserve	Water resource status and distribution known	KWS, WARMA, Masters students	2 years
		Monitor water flows	Trends on water flows established		
		Monitor water abstraction	Trends on water abstraction known		
			Data on abstraction and impacts on SHNR water regime		
	5. Determine the genetic diversity of the Sable antelope.	Conduct DNA analyses to confirm inbreeding possibility.	Genetic diversity of Sable antelope sub-population established.	KWS, Veterinary Department	1 year

APPENDIX 3 cont

Objective	Target	Activity	Indicator	Actor	Timeline
	6. Develop fire management plan	Determine the effect of prescribed burning on sable feeding behaviour.	Fire management plan	KWS	3 years
		Regularize prescribed burning program.	Established prescribed burning programme	KWS	4 years
		Construct fire breaks inside and along the park boundary.	Fire breaks and observation points	KWS	Immediate/ continuous
	7. Establish parasite control measures.	Carry out endo-parasites and ecto-parasites assessment of Sable antelopes in SHNR	Parasites load known	KWS, Veterinary Department	1 year
		Develop and implement ecto-parasites and endo-parasites control measures	Develop parasite management program	KWS, Veterinary Department	2 year
		Carry out epidemiological tests and regular monitoring	Health status known	KWS, Veterinary Department	Continuous
	8. Determine the impact of mega herbivores on Sable antelopes in Shimba Hills National Reserve.	Establish foraging succession	Types of foraging succession	KWS	1 year
		Determine impacts of major herbivores on habitat structure	Trends in habitat changes		

APPENDIX 3 cont

Objective	Target	Activity	Indicator	Actor	Timeline
	9.Evaluate the impact of climate change on known Sable antelope ranges	Analyze long term data on climate	Trends on climate known	KWS	1 year/ continuous
		Initiate long term vegetation monitoring.	Trends on vegetation changes		
		Establish weather monitoring station.	No. of weather stations and instrument established		
Strategic Objective 2 Diversifying Sable antelope population distribution	1. Identify potential sanctuaries/ sites for establishing Sable antelope.	Survey and document alternative Sable antelope potential habitats	A map and report of Sable antelope habitats	KWS, Local community	2 years
		Conduct an ecological and socio economic assessment on the sites identified	Assessment report		
		Consult with land owners on sites identified on private and communal land	Number of sites identified		
		Establish Sable antelope breeding sanctuaries	Number of breeding sanctuaries established		
		Selection of the source populations exposed to similar conditions to the target site	List of potential donors for alternative breeding sites		
Strategic Objective 3 Review & harmonize policies & legislations.	Harmonize overlapping institutional policies and regulations.	Resolve the dual gazettement status of Shimba Hills National Reserve.	Areas of conflicts/issues documented	Cabinet Secretary in charge of Forests & Wildlife	4 years
		Gazette SHNR under the Wildlife Act.	SHNR re-gazetted under Wildlife Act		

APPENDIX 3 cont

Objective	Target	Activity	Indicator	Actor	Timeline
Strategic Objective 4 Enhance security and surveillance for the Sable antelope.	1. Improved security patrol and surveillance in SHNR.	Initiate targeted surveillance of Sable antelope.	Surveillance reports and patrol logs	KWS, KFS, Relevant stakeholders	1 year/ continuous
	2. Embrace technology for security surveillance.	Mount surveillance cameras within Shimba Hills National Reserve.	Number of surveillance cameras installed	KWS	2 years
	3.Enlist community scouts	Recruit and train community scouts in monitoring Sable antelope.	Number of functional community scouts trained and deployed in Sable antelope range areas	KWS, KFS, Local community	Continuous
	4. Make the electric fence Sable antelope proof.	Modify the design of the Shimba Hills National Reserve electric fence in order to refrain Sable antelope from venturing outside.	Incidence of Sable antelopes outside Shimba Hills National reserve minimized	KWS	1 year
Strategic Objective 5 Enhance Community involvement and linkages with partners.	1. Establish socio-economic profile of communities neighbouring Shimba Hills National Reserve.	Carry out socio-economic studies around Shimba Hills Ecosystem	Community livelihoods known	KWS, KFS, Local community	1 year
	2. Establish Sable antelope community conservation committees.	Identify key community representatives for Sable antelope conservation committees.	Number of functional committees constituted		
	3. Enhance conservation education and awareness.	Conduct outreach programs	Number of outreach meetings, barazas held	KWS, KFS, Local community	Continuous
		Conduct conservation meetings and barazas	Minutes of committee meetings		
		Conduct community exposure tours	Exposure tours organized and attended		

APPENDIX 4

LEGAL FRAMEWORK RELEVANT TO SABLE ANTELOPE CONSERVATION

National Policy Framework

- The Water Policy, 1999
- National Land Policy, 2009
- Regional Development Authorities Policy, 2007
- The Wildlife Policy

National Statutes

1. The Environment Management and Coordination Act, 1999
2. The Public Health Act, Cap. 242
3. The Local Government Act Cap. 265
4. The Trust Land Act, Cap. 288
5. The Land Planning Act, Cap. 303
6. The Wildlife (Conservation and Management) Act, Cap. 376
7. The Tourism Industry Act, Cap. 385
8. The Forests Act, Cap. 385
9. The Science ,Technology and innovation Act, 2013
10. The Water Act, 2002
11. The Tourist Development Corporation Act, Cap. 382
12. The Coast Development Authority Act, No. 20 of 1990
13. The National Water Conservation Pipeline Corporation Act L/No.270 1988
14. The agriculture, fisheries and food authority Act, 2013
15. County government act, 2012
16. The Mining Act (306), 1987
17. National Museums and Heritage Act, 2006
18. The Lands Act, 2012
19. The Timber Act, Cap. 386
20. The Government Lands Act, Cap. 280
21. The Land Titles Act, Cap. 282
22. The Land Consolidation Act, Cap. 283
23. The Land Adjudication Act, Cap. 284
24. Land (Group Representatives) Act, Cap. 287

International treaties

Convention on Biodiversity	Ratified 26 Jul 1994
Convention on Wetlands	Entry into force 05 Oct 1990
UN Convention on Climate change	Ratified 30 Aug 1994
Kyoto Protocol on Climate Change	Not Accepted to date
Protection of World Cultural & Heritage Sites	Acceptance 05 Jun 1991
International Trade in Endangered Species	Ratified 13 Dec 1978
UN Convention on the Law of the Seas	Ratified 02 Mar 1989

REGULATIONS

- Environmental management and coordination (Wetlands, riverbanks, lakeshores and seashore management) regulations, 2009.
- Environment management and coordination (water quality) regulations, 2006.
- Environmental management and coordination (prevention of pollution in coastal zones and other segments of the environment) regulations, 20030

NATIONAL STRATEGIES

- National conservation and Management Strategy for sea Turtles in Kenya, 2011-2015
- National Conservation and Management Strategy for the Elephant
- National Conservation and Management Strategy for Rhino
- National Conservation and Management Strategy for Large Carnivores
- National Conservation and Management Strategy for Hirola
- National Conservation and Management Strategy for Grevy's Zebra

Appendix 5

TERMS OF REFERENCES FOR IMPLEMENTATION COMMITTEES

Terms of References for Management Committee

1. Review and evaluate effectiveness of the national conservation and management strategy and make appropriate recommendations.
2. Ratify recommendations and decisions by the technical and advisory committee.

Terms of References for Technical and Advisory Committee

This committee shall be composed of KWS, NEMA, KFS, WCK, WWF, SHICOFA, SHIFOGA, Polmans, Shimba Lodge, Eden Trust.

The terms of reference are as follows: -

1. Set monitoring standards and handling protocols, and evaluate their implementation
2. Prioritize funding needs and advice the liaison officer and national management committee.
3. Mobilize resources for strategy implementation
4. Advice on emerging issues of national concern in relation to sable antelope conservation
5. Advice the national management committee on policy and strategy development
6. Fulfill any other role deemed necessary by the national management committee

Terms of References for Liaison Office

1. Shall serve as the secretariat for the management and technical committee
2. Maintaining a central information depository for Sable antelope conservation and management through assembly of reports, data and other relevant information from collaborating agencies.
3. Liaise with all the stakeholders as identified in the Sable antelope conservation strategy during implementation and to streamline information flow.
4. Arrange quarterly meetings with technical and advisory committee and annual meeting with management committee.
5. Arrange meetings of site committees every two months.
6. Prepare quarterly progress reports for the technical committee.

Appendix 6

LIST OF THE NATIONAL SABLE ANTELOPE TASKFORCE MEMBERS

Name	Institution
1. Dr. Charles Musyoki	KWS
2. Dr. Mohammed Omar	KWS
3. James Mwangombe	KFS
4. Richard Lemarkat	KWS - SHNR
5. Elias Kimaru	WWF - Kwale
6. Paul Musila	Mwaluganje Elephant Sanctuary
7. Diana Kisinga	Eden Wildlife Trust
8. Rahab Livu	Shimba Lodge
9. Angela Sheldrick	David Sheldrick Wildlife Trust
10. Gideon Amboga	Baobab Trust
11. Sabine Baer	Lafarge Ecosystems
12. Mwakutunza S. Mwarabu	Shimba Hills Guides Association
13. Hamisi Salim Dzilla	Shimba Hills community Forests Association

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