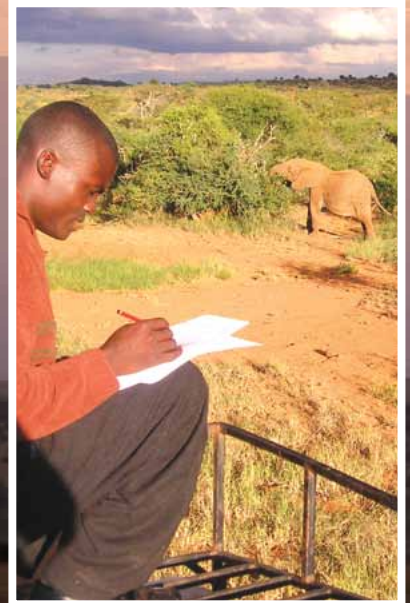




LAIKIPIA WILDLIFE FORUM



WILDLIFE CONSERVATION STRATEGY FOR LAIKIPIA COUNTY

2012 - 2030



[COVER] Plate 1: View of Mt Kenya from the Laikipia Plateau-Tui De Roy & Mark Jones **Plate 2:** Laikipia holds around 15% of Kenya's lions, *Panthera leo* and possibly the only stable population in the country-Tui De Roy & Mark Jones **Plate 3:** Laikipia, together with neighbouring Samburu, holds more than 7,000 elephants, the second largest population in Kenya-Max Graham, *Space for Giants* **Plate 4:** Laikipia has a world reputation for producing indigenous Boran cattle -Tui De Roy & Mark Jones

Plate 5: Grevy's zebra, *Equus grevyi*, are globally endangered. Laikipia, together with neighbouring Samburu holds around 80% of the 3000 that remain on earth-Tui De Roy & Mark Jones

2012 - 2030

WILDLIFE CONSERVATION STRATEGY FOR LAIKIPIA COUNTY

Compiled by: Max Graham

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Max Graham and Charles Musyoki led the development of this strategy.

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CONTENTS

- I) ACKNOWLEDGEMENTS**
- II) FOREWORD** Director of Kenya Wildlife Service.....**1 & 2**
- III) PREFACE** By Executive Director of Laikipia Wildlife Forum.....**3 & 4**
- IV) CONSERVATION STRATEGY** at a glance.....**5**
- V) EXECUTIVE SUMMARY**.....**6 & 7**
- 1. INTRODUCTION**.....**8 - 12**
- 2. BACKGROUND**.....**13 - 18**
 - 2.1 Physical Geography
 - 2.2 History
 - 2.3 Land use
- 3. THE STRATEGY DEVELOPMENT PROCESS**.....**19 - 21**
 - 3.1 Establishing the Project Team
 - 3.2 Situation assessment
 - 3.3 Strategic planning
 - 3.4 Conference and Stakeholder Validation
- 4. THE CONSERVATION STRATEGY**.....**22**
- 5. STRATEGIC OBJECTIVES**.....**23 - 50**
 - 5.1 Space**.....**23 - 28**
 - 5.1.1 Rationale
 - 5.1.2 Threats
 - 5.1.3 Opportunities
 - 5.1.4 Income
 - 5.2 Security**.....**29 - 32**
 - 5.2.1 Rationale.
 - 5.2.2 Threats
 - 5.2.3 Opportunities
 - 5.3 Ecosystem Integrity**.....**33 - 38**
 - 5.3.1 Rationale
 - 5.3.2 Threats
 - 5.3.3 Opportunities
 - 5.4 Collaboration**.....**39 - 42**
 - 5.4.1 Rationale
 - 5.4.2 Threats
 - 5.4.3 Opportunities
 - 5.5 Human-Wildlife Conflict**.....**43 - 50**
 - 5.5.1 Rationale
 - 5.5.2 Threats
 - 5.5.3 Opportunities
- REFERENCES**.....**51 - 54**
- APPENDICES**.....**55 - 62**
 - Appendix 1: Individuals interviewed and consulted to develop the situation assessment between 2010 to 2011
 - Appendix 2: Participants at the L.W.F Conference on March 22nd 2012
 - Appendix 3: Draft Laikipia Conservation Action Plan

List of Boxes

- 1:** Kenya Vision 2030.....**11**
- 2:** Kirumun National Reserve.....**25**
- 3:** Broad Habitat Types found within Laikipia.....**34**
- 4:** The Laikipia Wildlife Forum.....**41**
- 5:** The West Laikipia Fence.....**48**

List of Figures

- 1:** Location of Laikipia County.....**1**
- 2:** Land tenure in Laikipia County.....**17**
- 3:** Land use in Laikipia County.....**17**
- 4:** Wildlife distribution and Conservation-compatible land use in Laikipia County.....**24**
- 5:** Distribution of livestock in relation to wildlife in Laikipia County.....**25**
- 6:** Barriers & Sinks in Laikipia County.....**36**
- 7:** Distribution of crop-raiding by elephants in Laikipia County.....**44**
- 8:** West Laikipia Fence Project.....**48**

LIST OF PLATES

- 1:** View of Mt Kenya from the Laikipia Plateau-Tui De Roy & Mark Jones.....**cover**
- 2:** Laikipia holds around 15% of Kenya's lions, Panthera leo and possibly the only stable population in the country-Tui De Roy & Mark Jones.....**cover**
- 3:** Laikipia, together with neighbouring Samburu, holds more than 7,000 elephants, the second argest population in Kenya-Max Graham, Space for Giants.....**cover**
- 4:** Laikipia has a world reputation for producing indigenous Boran cattle-Tui De Roy & Mark Jones.....**cover**
- 5:** Grevy's zebra, Equus grevyi, are globally endangered. Laikipia, together with neighbouring Samburu holds around 80% of the 3000 that remain on earth-Tui De Roy & Mark Jones.....**cover**
- 26:** African Wild dogs, Lycaon pictus, are also globally endangered. However in Laikipia this species is thriving, with around 200 individuals in 17 packs, the sixth largest population remaining in the wild -Tui De Roy & Mark Jones.....**2**
- 7:** Beisa Oryx, Oryx beisa, is in decline across its range and Laikipia is no exception -Tui De Roy & Mark Jones.....**3**
- 8:** Laikipia County supports half of Kenya's remaining black rhinos, Diceros bicornis -Tui De Roy & Mark Jones.....**6**
- 9:** Colobus Monkeys, Colobus guereza, occur in diminishing numbers the few remaining patches of upland forests within Laikipia County-Tui De Roy & Mark Jones.....**9**
- 10:** Tourism is a major driver of Laikipia's economy and a key pillar of Kenya's Vision 2030 -Loisaba photo collection.....**12**
- 11 & 12:** The original inhabitants of Laikipia left an enduring footprint on the landscape, through their rock art and ancient board games-Tui De Roy & Mark Jones.....**16**
- 13:** The Laikipia Hartebeest, Alcelaphus buselaphus, a crossbreed between two overlapping subspecies, is the one antelope species that is in major danger of becoming extinct in Laikipia, having declined from over 3000 individuals in the 1980s, to around 600 today. The reasons for this decline are not fully understood -Tui De Roy & Mark Jones.....**18**
- 14:** Participants of the Conservation Strategy Conference-Delphine King.....**21**
- 15:** There is great hope that revenue generation among Laikipia's semi-arid rangelands can be enhanced through conservation-compatible livestock production to supply emerging domestic and overseas premium beef market-Tui De Roy & Mark Jones.....**28**
- 16:** Community Policing Initiatives, often using specialised tracker dogs like these, have greatly enhanced security for people and wildlife in Laikipia County-Tui De Roy & Mark Jones.....**32**
- 17:** Kenya Wildlife Service Rangers- Flora Bagnal.....**32**
- 18:** Over abstraction from Laikipia's permanent rivers is a major source of conflict with downstream users and a huge challenge for Laikipia's future-Tui De Roy & Mark Jones.....**37**
- 9:** Elephant moving through a recently created underpass in The Ngare Ndare-Mt Kenya elephant corridor-Susie Weeks, Mt Kenya Trust.....**37**
- 20:** Wildlife research in Laikipia is thriving, providing an opportunity to inform policy and practice across the region-Tui De Roy & Mark Jones.....**40**
- 21:** Women making elephant dung paper in the Mukogodo Forest-Anne Powys.....**40**
- 22:** Wildlife research in Laikipia is thriving, providing an opportunity to inform policy and practice across the region-Flora Bagnal.....**42**
- 23 & 24:** Grain store damaged by elephants-Max Graham, Space for Giants Poisoned elephants -Joseph Wahome, Space for Giants.....**46**
- 25:** Predator proof bomas have virtually eliminated nocturnal predation of livestock in some of Laikipia's private ranches-Tui De Roy & Mark Jones.....**46**
- 26 & 27:** Interactive drama has transformed the way some conservation organisations communicate at the local level-Max Graham, Space for Giants.....**50**



II) FOREWORD

By Director of the Kenya Wildlife Service

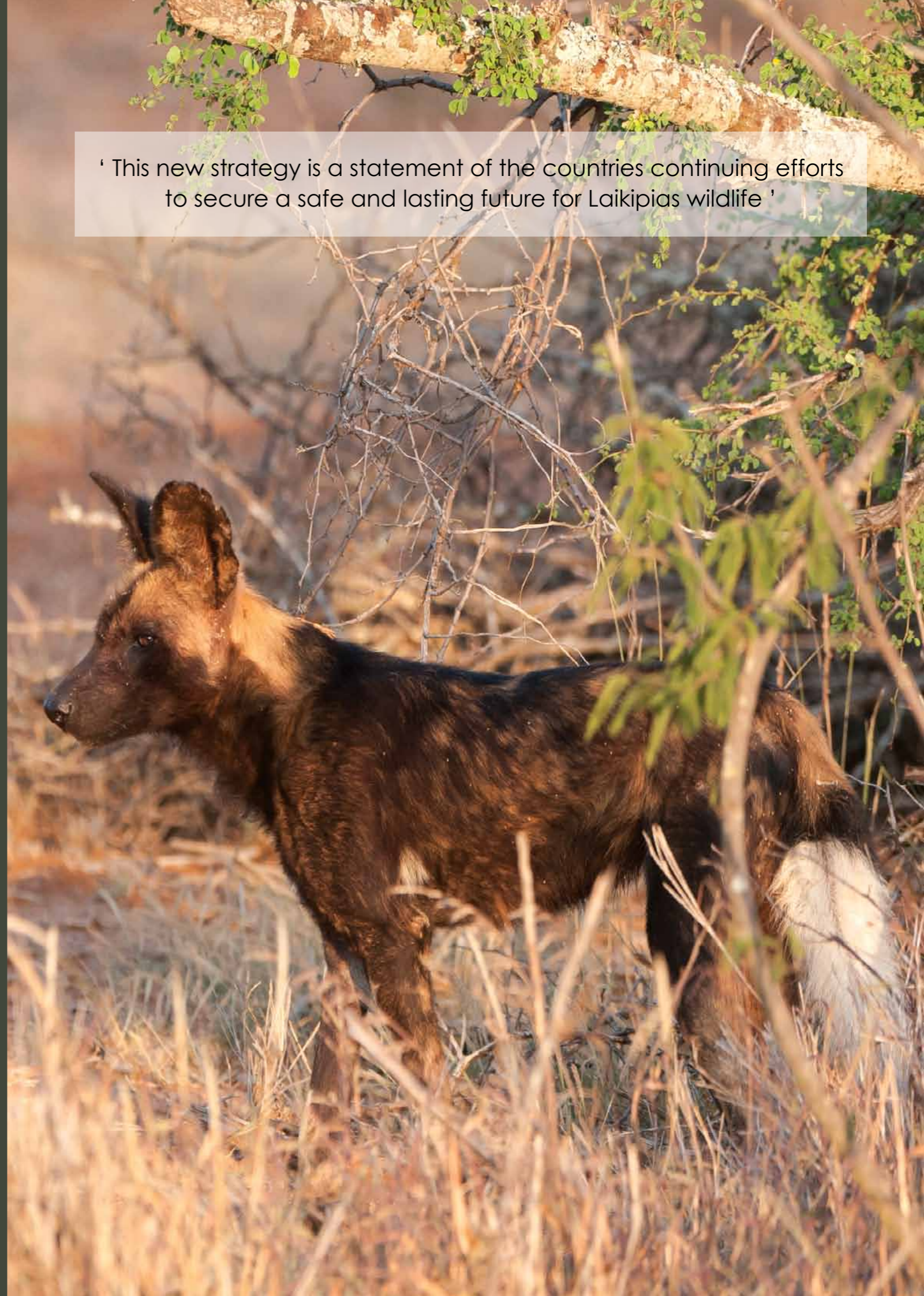
The earliest records of the particular affinity for wildlife that existed amongst Laikipia's people date back to the mid 1920's in the minutes of Laikipia Farmers' Committee meetings. During that time, large tracts of Kenya, including the Central highlands, Kisii highlands and the Lake Victoria basin were teeming with wildlife. The above areas and much of Kenya lost all their wildlife, other than those which came under state protection in National Parks. Laikipia is one of the most notable exceptions to this trend. This conservation ethic preceded the Laikipia Wildlife Forum, so ours has just been an attempt to give it some structure, hence the Laikipia Wildlife Conservation Strategy. It has now come to be, and with it we hope to open a new era in practice and study of wildlife conservation. I would like to acknowledge the efforts made by Dr. Max Graham and the conservation committee in compiling and synthesizing all the views and information needed in such a strategy. The Laikipia Wildlife Forum does not expect this document to be a prescription of how we are going to preserve wildlife in Laikipia, but a guideline on the issues that will form a basis for the conservation partnerships we must forge for the future of people and wildlife in Laikipia County. Laikipia's wildlife has always been a challenge, a source of pride, and asset to many people at many levels. However, since this wildlife lives in and amongst people, the context of conservation in Laikipia is wider than what is generally acknowledged. It involves a constant state of negotiations over multiple aspects, including pasture sharing, water sharing, use of forests, crop damage, livestock loss, and security. Over 60% of the issues to be dealt with do not involve any direct dealings with wild animals- they are issues that arise amongst people. The implementation of this strategy therefore will be a process of managing partnerships with ranchers, farmers, law enforcement officers, water users, tourism businesses, scientists and others. Laikipia is changing rapidly, with a high rate of settlement, housing development and land subdivision, forcing people and wildlife into adjustments to meet the reduced availability of resources. The Laikipia Wildlife Forum now faces the task of implementing this strategy. Through this process, we expect that valuable lessons will be learnt by all, resulting in a more cohesive society, environmentally responsible population, secure in their pursuits of various livelihoods. This is the reason why we regard this document as a guideline. It will necessarily evolve as it is implemented, because a static tool cannot 'repair' a dynamic problem.

Mordecai O. Ogada

Nanyuki, September 2012

[RIGHT] **Plate 6:** African Wild dogs, *Lycaon pictus*, are also globally endangered. However in Laikipia this species is thriving, with around 200 individuals in 17 packs, the sixth largest population remaining in the world-Tui De Roy & Mark Jones

' This new strategy is a statement of the countries continuing efforts to secure a safe and lasting future for Laikipias wildlife '



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III) PREFACE

By Executive Director of the Laikipia Wildlife Forum

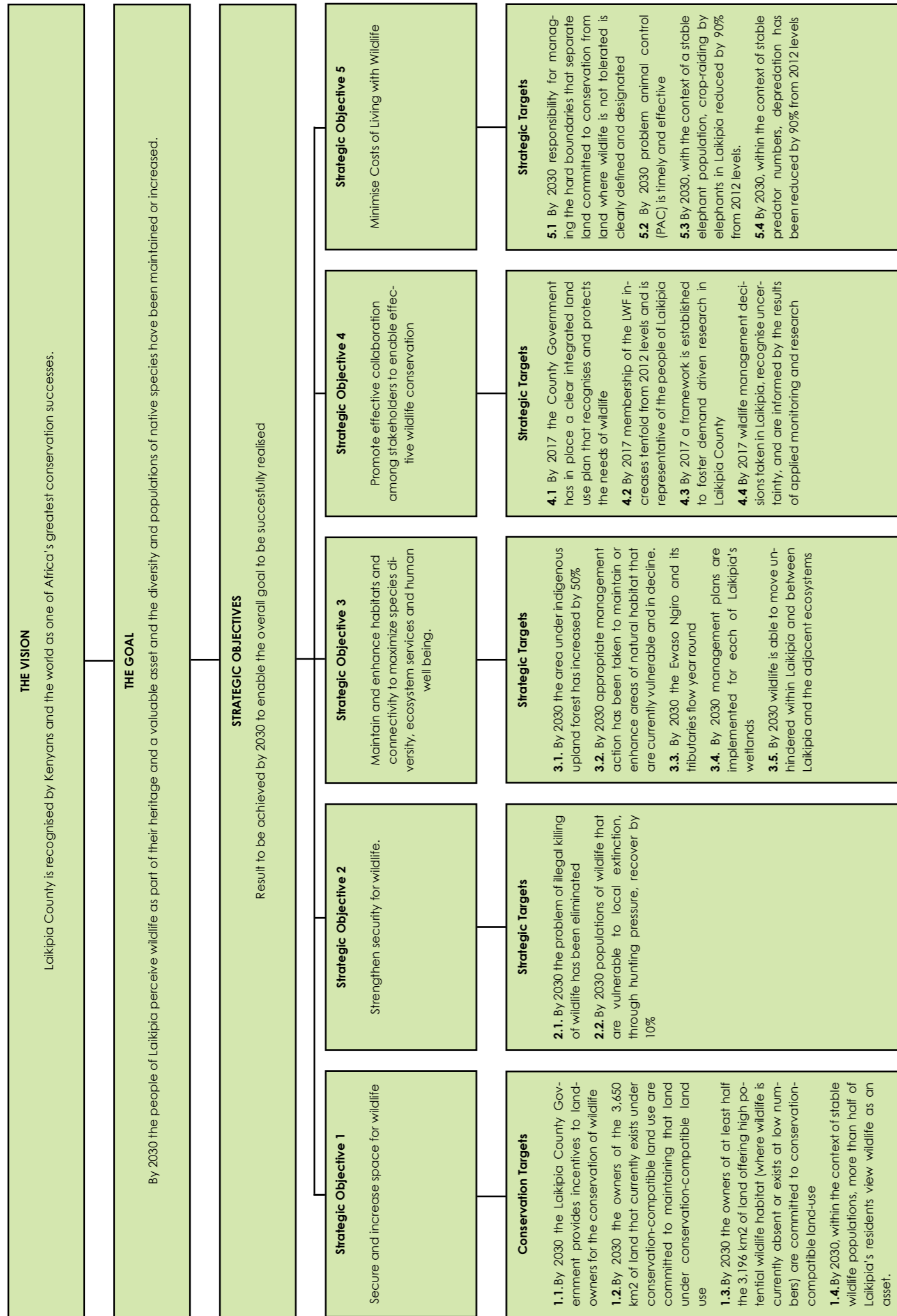
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Mordecai O. Ogada

Nanyuki, September 2012

[LEFT] **Plate 7:** Beisa Oryx, *Oryx beisa*, is in decline across its range and Laikipia is no exception
-Tui De Roy & Mark Jones

IV) CONSERVATION STRATEGY: At a glance



V) EXECUTIVE SUMMARY

Laikipia County is one of East Africa's most important areas for wildlife conservation. There are several reasons for this. First, Laikipia contains higher populations of large mammals than any protected or unprotected landscape in Kenya, outside of the Maasai Mara National Reserve. Secondly Laikipia is rich in biodiversity with over ninety-five species of mammals, 540 species of birds, over 700 species of plants and almost 1000 species of invertebrates already identified. However it is perhaps Laikipia's assemblage of large, globally threatened mammals that makes it particularly unique from a biodiversity perspective. Laikipia contains half of Kenya's black rhinos, the country's second largest population of elephants, Kenya's third largest and only stable population of lions, the world's sixth largest population of African wild dogs, a large proportion of the world's remaining Grevy's zebras, perhaps as many as two thirds of the world's remaining Reticulated giraffe, a globally significant population of cheetah, Kenya's largest population of patas monkeys and a unique race of hartebeest. Laikipia is arguably, therefore, one of the last viable refuges for large terrestrial mammals in East Africa. Third, wildlife in Laikipia is generating significant benefits. In 2009 the wildlife sector generated an estimated \$US 20,500,000 in tourism revenue, directly supporting 6,500 people. The wildlife sector raised a further \$3,500,000 for social development projects such as education, healthcare, infrastructure development, security and livelihood support and \$5,000,000 for wildlife conservation. Fourth, Laikipia is at the cutting edge of community conservation. It is here that the world's first and perhaps most famous community-owned and managed wildlife lodge was created, "Ilngwezi". There have been many further community owned conservation initiatives since, largely with the support of two local membership-based conservation organisations, the Laikipia Wildlife Forum and the Northern Rangelands Trust. These organisations are creating capacity among local people to manage and benefit from wildlife in a way that is innovative and possibly, unique, in East Africa. Lastly Laikipia is a global hub of learning on the relationship between people and wildlife in shared landscapes. There is perhaps nowhere else where the challenges and opportunities for wildlife conservation, outside of protected areas, are better understood.

For all these reasons Laikipia County is of global significance from a conservation perspective. However of greater immediate relevance is that the wildlife of Laikipia County and its existing and potential benefits, could help support Kenya's national aspiration to become "a middle-income country by the year 2030 " as articulated in Kenya Vision 2030, the country's development blueprint. If carefully protected and managed, Laikipia's wildlife sector will also greatly support the new county administration to meet its aspirations for local people and for the environment.

Despite its importance at local, national and global levels, the natural integrity of Laikipia County and the wildlife populations it supports are severely threatened. A 2012 analysis of aerial count data suggests that wildlife numbers here have declined significantly in recent years. It is for this reason that the Laikipia Wildlife Forum and the Kenya Wildlife Service have developed this conservation strategy. The process of developing the strategy was highly consultative. Over 300 landowners, land managers, tourism operators, researchers, government officials and conservationists were consulted. In addition a conference was held for stakeholders to review and validate

a draft of the strategy. Drawing on their insights and the available literature this strategy aims to clarify the challenges and opportunities that exist in Laikipia for wildlife conservation.

Severe challenges to the future of Laikipia's wildlife were identified in the process of developing this strategy. These include the significant threats of land-use change, insecurity, habitat loss, barriers to wildlife movement, lack of unity among local stakeholders and human-wildlife conflict, among others. Fortunately there exist many opportunities for securing a future for Laikipia's wildlife and the benefits it generates. Above all is the extensive area of land currently available to wildlife. Maintaining and expanding this area of conservation-compatible land use will achieve many of the strategic objectives and targets contained within this conservation strategy. However, this can only be achieved if the majority of Laikipians value and support wildlife, as part of their natural heritage.

This strategy aims to provide a road map for addressing the challenges and realise the opportunities for wildlife conservation in Laikipia County. It does so through a vision, a goal and the following five strategic objectives:

1) secure space for wildlife; 2) strengthen security for wildlife; 3) maintain and enhance habitats and connectivity to maximise species diversity, ecosystem services and human wellbeing; 4) Promote effective collaboration among stakeholders to enable effective wildlife conservation; and 5) minimise costs of living with wildlife. Within this strategic document, each of these strategic objectives is built around a clear rationale that provides the basis for a number of strategic targets. If these targets are met, then "by 2030 the people of Laikipia will perceive wildlife as part of their heritage and a valuable asset and the diversity and populations of native species will be maintained or increased."

However, in order for the targets to be met and the strategic objectives to be realised, a number of actions must be undertaken by local stakeholders. To this end a draft strategic action plan was developed during a stakeholders' conference. This will need to be refined, with clear roles and responsibilities agreed on by implementing agents and their partners. In addition it is important to recognise that this strategy is a "live document" that will need to be changed and updated, as the situation on the ground changes and new challenges and opportunities emerge. While this strategy provides clear direction for Laikipians to conserve and manage their extraordinary heritage, it can only be successfully implemented with political will, the commitment of landowners, the backing of government and the resources and technical capacity of conservation organisations and development partners.

[ABOVE] Plate 8: Laikipia County supports half of Kenya's remaining black rhinos, *Diceros bicornis*
-Tui De Roy & Mark Jones



1. INTRODUCTION

The background rate of species extinction that has occurred throughout the history of the earth is around one species per million species per year (Wilson 1992). Today the rate of extinction is believed to be between 1000 to 10,000 times greater than that. We are in the midst of the sixth greatest episodes of extinction in the history of the earth (Leakey & Lewin 1995).

There is one factor above all others contributing towards this sharp decline in the diversity of life and the alarming degradation of the natural environment. It is us. There are now an estimated 6.93 billion people on the earth and this is projected to reach as high as 10.5 billion by 2050. Humans use, either directly or indirectly, an estimated 40% of terrestrial primary production and our activities have disturbed more than three quarters of the habitable surface of the earth (Adams, 2009). The scale of the human impact on the natural environment is not diminishing. If anything it is increasing. "We are changing the earth more rapidly than we are understanding it," (Vitousek et al 1997).

Conservation, in its modern form has been described as 'a social reaction against the human impacts on living diversity' (Adams 2009). As a movement, it has been remarkably successful. There are now 100,000 designated protected areas, covering some 12% of the Earth's land surface, occurring in every country of the world (Chape et al 2005). However the global protected area network does not mirror global priorities for biodiversity conservation. Furthermore most protected areas are simply not large enough to ensure the persistence of populations of the species they contain, with large, wide-ranging species particularly vulnerable (Woodroffe & Ginsberg 1998). It is now widely accepted that isolated islands cannot sustain biodiversity (Schafer 1990). Emerging understanding of the implications of climate change adds a degree of urgency to the need to do more. For all these reasons, the focus of the conservation movement has moved beyond protected areas and into the wider human occupied landscape (Western et al 1994). Laikipia County in north-central Kenya provides a good example of why this new focus for conservation is so important.

Laikipia County is considered one of East Africa's most important areas for wildlife conservation. There are several reasons for this. Firstly, Laikipia County contains one of the largest single contiguous areas of conservation-compatible land use in East Africa, covering around 3,650 km². For comparison there is no single gazetted protected area in Kenya that is larger, with the exception of Tsavo East and Tsavo West National Parks. As a consequence Laikipia has enough space to hold large and viable populations of mega-fauna. In 2008 the population estimates for wild animals in Laikipia County, based on aerial sample counts undertaken by the Department of Resource Surveys and Remote Sensing, (in which the most prevalent species of animals the size of a Thomson's Gazelle and above are counted), was 64,225 (Kinaird et al 2008). This compares to 47,599 animals counted in Tsavo East, Tsavo West, Amboseli and Nairobi National Parks combined (Western et al 2009). Furthermore, until recently, the wildlife populations of Laikipia were relatively stable in the context of steep declines of such wildlife across Kenya both inside and outside of protected areas. Laikipia County is therefore one of the few viable refuges for mega-fauna left in East Africa.

' Laikipia contains high species diversity. 95 species of mammals, 540 species of birds, 87 species of amphibians and reptiles, almost a 1000 species of invertebrates and over 700 species of plants have been recorded here. '

Secondly Laikipia contains high species diversity. To date 95 species of mammals, 540 species of birds, 87 species of amphibians and reptiles, almost a 1000 species of invertebrates and over 700 species of plants have been recorded here. This list is likely to be a huge underestimate of the total number of species that exist in Laikipia. The reason for Laikipia County's high biodiversity is the extent of the area of conservation-compatible land-use it contains, its varied topography and its geographical setting, straddling several ecological zones. Laikipia contains isolated hill tops, escarpments, river valleys and mountain ranges. It is for these reasons that Laikipia also contains rare species and possibly endemics. There are certainly some species that have been found in parts of Laikipia that have not been found anywhere else on earth (such as, for example, a species Aloe, *Aloe francombei* and a species of butterfly, *Aslauga* sp. nov and possibly two species of geckos, all found on the Laikipia Nature Conservancy in West Laikipia).

However, from a conservation perspective, it is Laikipia's diverse community of large mammals that stands out, globally. For example Laikipia supports half of Kenya's Black rhinos *Diceros bicornis* and Kenya's second largest population of elephants that, combined with neighbouring Samburu, number over 7,000 animals. There are approximately 250 lions here, 15% of Kenya's total number and perhaps the only stable population in the country. Kenya's largest population of Africa Wild Dog *Lycaon pictus* occurs here, numbering 200 individuals in 17 packs, the world's sixth largest. Laikipia also contains significant populations of Cheetah *Acinonyx jubatus*. It is the presence of stable populations of predators that led the Kenya Wildlife Service (KWS) to classify Laikipia as one of the three most important areas for large carnivore conservation in the country (KWS 2008). Laikipia, together with parts of neighbouring Samburu, is a refuge for 80% of the world's remaining Grevy's zebra *Equus grevyi*. It is also where two thirds of the world's remaining reticulated giraffe *Giraffa camelopardalis* ssp *reticulata* occur, a unique sub-species of which only 3,000 remain. Laikipia holds around two thirds of these. Jackson's Hartebeest *Alcelaphus buselaphus* is a unique variety of hartebeest that only occurs here. Laikipia is also increasingly recognised as an important refuge for patas monkeys *Erythrocebus patas*, containing Kenya's largest and only stable population of around 400 individuals.

Thirdly, the wildlife sector in Laikipia generates significant benefits at the local, national and international levels. Today there are 41 tourism facilities in Laikipia, collectively providing 1,106 beds and offering 56 different activities. The average tourist facility contains just 13 beds and in many cases the tourism footprint is managed in such a way as to maintain exclusivity for visitors, providing a high end wildlife viewing and wilderness experience that, with a few exceptions, is unique in Kenya. The wildlife-based tourism sector of Laikipia County generates USD\$20,500,000 (Ksh1.7 billion; USD\$1=Ksh 83) of revenue per annum, employing 1,300 people (each with on average 5 dependent) with USD\$ 3 million (Ksh 249 million) in wage earnings. This sector is also pumping Ksh162 million into local purchases (groceries etc.). While these figures are impressive, what is even more remarkable is the extent to which the wildlife-based tourism sector in Laikipia invests in social welfare and wildlife conservation. Every year 3.5 million (Ksh 290 million dollars) are invested in social and infrastructure development such as security, roads, healthcare, education and livelihood support. A further USD\$ 5 million (KSh 415 million) dollars are pumped directly into conservation projects (LWF, 2008). Over 50% of this support comes directly from tourism earnings,

[LEFT] Plate 9: Colobus Monkeys, *Colobus guereza*, occur in diminishing numbers in the few remaining patches of upland forests -Tui De Roy & Mark Jones

with the remaining provided by donors. The wildlife sector of Laikipia County is therefore an engine for local and national development and if carefully managed, could be instrumental in helping the government of Kenya to achieve its 2030 vision (Box 1).

Fourthly Laikipia County provides important lessons for delivering conservation outside of formally protected areas. The wildlife of Laikipia occurs on land that is owned and used by different groups of people for different purposes. This has been achieved through the adoption of conservation compatible systems of land-use, encouraged by local membership-based conservation organisations (primarily the Laikipia Wildlife Forum and Northern Rangelands Trust) and made possible through financial support from wildlife-based enterprises and conservation philanthropy. Among the initiatives that have enabled the introduction of conservation-compatible land-use are several partnership arrangements between the private sector and local community groups to establish tourism facilities and associated income streams

BOX 1: KENYA VISION 2030

Kenya Vision 2030 is the country's development blue print covering the period 2008 to 2030. It aims to transform Kenya into a newly industrialised, middle-income country providing a high quality of life to all its citizens by the year 2030.

The vision was recommended by Kenya's National Economic Council and formally adopted by the Government of Kenya in 2006. It is based on three pillars, the economic, the social and the political. The economic development programme aims to achieve an average Gross Domestic Product (GDP) growth rate of 10%. The social pillar seeks to build a just and cohesive society with social equity in a clean and secure environment. The political pillar aims to realise a democratic political system, founded on issue-based politics that respects the rule of law, and protect the rights and freedoms of every individual in Kenyan society.

There are six sectors that have been given priority as key areas for growth to achieve the economic component of vision 2030. Tourism is one of these.

The three strategic goals for tourism are:

- Quadruple tourism's GDP contribution to more than Ksh 200 billion
- Raise international visitors from 1.6 million in 2006 to 3 million in 2012, while raising average spent per visitor from Ksh 40,000 to Ksh 70,000
- Increase hotel beds from 40,000 to 65,000, with an emphasis on high quality service

There are also several flagship tourism products, several of which are relevant to Laikipia:

- Develop 3 resort cities (one of the areas targets is Isiolo but given current trends Nanyuki might be an ideal alternative)
- Provide 3,000 beds in high-cost accommodation for tourists interested in cultural and eco-tourism.

on community owned land (e.g. Iingwezi, Tassia, Ol Lentilli and Kojja Star Beds).

The fifth reason that Laikipia County is of conservation value not just locally but globally is that it has become a centre for learning for the management and conservation of wildlife outside of protected areas. It is here that researchers and landowners have come up with innovative tools to study and manage the interactions between wildlife and people. More recent sources of learning have occurred in the area of livestock grazing management. In addition new systems for community-based governance of communal resources, such as river water and forests are under trial here. For all these reasons Laikipia has become an international destination for students and practitioners of wildlife conservation and management. It is a living "case study" of the challenges and opportunities for conservation outside of government protected areas.

For the reasons outlined above Laikipia County is considered to be of enormous conservation importance at local, national and international levels. However, recent analyses suggest Laikipia's wildlife numbers have declined significantly since 2001 (Obrien et al 2012). This may be a consequence of the significant decline in the area available to wildlife in Laikipia in recent years. Given these trends, this important national resource and a key pillar of the government's vision for national development and prosperity, is under major threat. In 2010, with a view to addressing this threat, the Laikipia Wildlife Forum and the Kenya Wildlife Service initiated a process to develop a strategy to conserve the wildlife of Laikipia County. This document is the outcome of that process.



[ABOVE] Plate 10: Tourism is a major driver of Laikipia's economy and a key pillar of Kenya's Vision 2030
-Loisaba photo collection

2. BACKGROUND

2.1 Physical Geography

Laikipia County covers 9,700 km² in north-central Kenya (36°10'–37°03' E and 0°17'S–0°45'N), straddling the equator. Mt. Kenya (5199 m) to the south east and the Aberdare highlands (3999 m) to the south west create an elevation gradient from the south to the north of the county. Much of Laikipia encompasses the high plateau (1700 to 2000 m) between these mountains and is covered by their volcanic layers. The western end of Laikipia is characterized by the mountains and ridges along the Rift Valley–Ndunori (2870 m), Mamanet (2609 m) and Lariak (2283 m). In east Laikipia the hills of the Loldaiga-Mukogodo area create significant variety in relief. The other notable topographical features are the isolated hills and escarpments that occur throughout the county. In the north, the Laikipia plateau drops away into low plains between 800 to 1,200 m, marking the beginning of the northern rangelands, a vast stretch of arid and semi-arid savanna, punctuated by isolated mountains, that extends into neighboring Ethiopia and Somalia.

The marked altitude gradient from south to north of Laikipia has an associated impact on climate, with annual rainfall varying from 750mm in the south to 300 mm in the north. Rainfall typically falls in two seasons; the long rains, between April and June, and the short rains, between October and December (Berger, 1989; Gichuki et al., 1998). The variation in altitude and rainfall across the district is associated with marked changes in vegetation cover. Broadly this includes protected upland forest and a belt of mixed cultivation in the south, giving way to a mosaic of bushland, savannah, open grassland and woodland in the north. Within these broad land-cover categories there is considerable variety in specific vegetation types, with over 17 classified (Taiti 1992). A single perennial river, the Ewaso Ngiro and its tributary, the Ewaso Narok, both with smaller tributaries originating in Mt Kenya and the Aberdares, respectively, drain Laikipia County and provide the only natural permanent source of water for people and wildlife to the north.

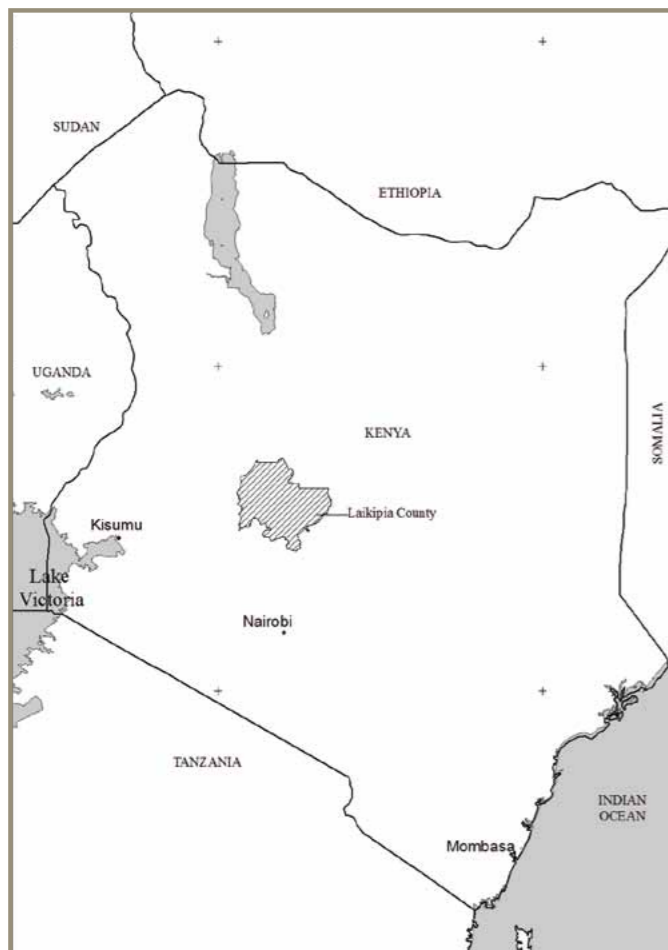


Figure 1: Location of Laikipia County in East Africa

2.2 History

Laikipia has a long history of human occupancy and use, though its pre-colonial history is difficult to describe with any certainty. Evidence from archaeological sites suggests that early Laikipia was occupied by specialised hunters and gatherers until around 4000-3000 BP (before present) when domestic stock first appear in the archaeological record (Jacobs 1972), possibly a consequence of movement and local contact with early proto-Southern Cushitic pastoralists who may have moved south in response to a mid-Holocene dry phase (Gifford-Gonzalez 1998). However livestock production initially occurred alongside traditional hunting and foraging strategies, possibly because of the availability of abundant wild foods but also because of the incidence of livestock diseases such as Trypanosomiasis and Catarrhal Fever. As livestock production became more dominant and specialised it had a measurable impact on the landscape, as indicated by the pollen record (Taylor et al 2005). Around 1900 BP the pollen record suggests that the prevailing Afrotropical forest was replaced by fire-adapted Acacia bushland. By 700 BP the pollen record suggests a major expansion of fire-resistant grassland, indicating a burning strategy for the maintenance of grassland and the control of livestock disease vectors (ticks). The early occupants of Laikipia left an enduring imprint on the landscape including rock art, stone cairns, stone circles, flaked obsidian, pottery and iron slag (Taylor et al 2005). In addition these occupants left behind a Cushitic language known as Yaaku (Heine 1974) that is still spoken among remnants of a former hunter-gathering group living in the Mukogodo Forest in north-eastern Laikipia. The oral record suggests these Cushitic speaking people, with origins in southern Ethiopia, co-existed alongside indigenous foragers until they were displaced by Nilotic Maa speakers in the eighteenth century. It is this mysterious "Laikipiak" section of Maasai people from which the region derives its name. Oral traditions suggest the Laikipiak Maasai were wiped out during an internecine "Iloikop" civil war in 1870 by a combined force of Purko-Kisingo Maasai from the south (Cronk 2004).

The arrival of the British after the establishment of British East Africa in 1895 resulted in a major change in land-tenure and use on the Laikipia plateau. In 1904 an agreement was drawn up between the British colonial government and Maasai elders resulting in the Maasai vacating their lands in the Central Rift Valley in exchange for a Northern Maasai Reserve in the Laikipia region and a Southern Maasai Reserve in Kajiado and Narok (Hughes 2005). Another Maasai agreement in 1911 moved the Maasai from the Northern Reserve into an expanded Southern Reserve and paved the way for European settlement in Laikipia (Hughes 2005).

Early settlement of Laikipia by European settlers was slow but this sped up in the 1920s with the soldier settler scheme, in which farming units of between 1,000 and 5,000 acres were made available on easy terms to retiring British soldiers (Kohler 1987). Successful pioneer farmers bought up and consolidated smaller farm units. This combined with local government policy contributed to the emergence of very large farming units that, it was argued, were necessary to maintain viable livestock operations in an area of marginal rainfall. Land consolidation continued up until and even after Kenyan independence resulting in the creation of large ranching estates (Kohler 1987) some exceeding 90,000 acres in size. Changes in land tenure in Laikipia from pre-colonial to colonial times had several notable effects. The first was the significant destocking that occurred in Laikipia with the removal of Maasai pastoralists. In 1906 there were approximately 64,000 cattle and 1,750,000 sheep in Laikipia. By 1923 there were

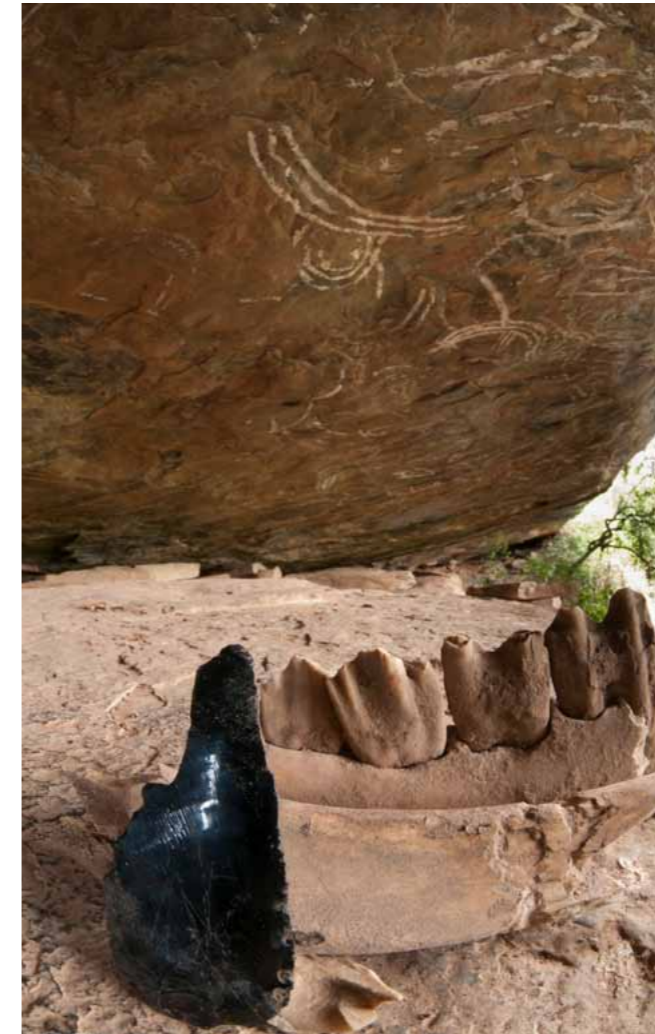
just 12,202 cattle, 16,145 sheep and 2,533 goats (Lane 2005). In contrast to Maasai pastoralists, settler farmers suppressed fire, which combined with de-stocking, resulted in an increase bushland and woodland cover in Laikipia (Larsen and Lane 2005). Settlers also developed surface water supplies such as dams and boreholes and invested heavily in fencing to create paddock systems for livestock management. Commercial cultivation of cereals was introduced to Laikipia by settler farmers, in the wetter south-west, around Ol Arabel, particularly during the Second World War. Some species of wildlife at this time, particularly carnivores and disease carrying ungulates, were considered vermin and were actively persecuted (Denney 1972). It is interesting to note that elephants were not present in Laikipia at this time, with the exception of populations in the forests in the south-west (Thouless 1993).

Kenyan independence in 1963 marked another major transition in land tenure and use in Laikipia. Many large-scale ranches were purchased through government sponsored settlement schemes and privately owned land buying companies. These properties were subsequently sub-divided and where arable were settled by small-scale farmers originating in the densely populated former Kikuyu Reserve to the south (Kohler 1987). Sub-division slowed by the 1980s as the pool of willing sellers and available arable land was exhausted. This process of land subdivision and associated settlement by smallholders contributed to the fastest rate of population growth within Kenya. The population of Laikipia grew from around 30,000 in the early 1960s, to 134,500 in 1979, 176,000 in 1984, 220,000 in 1989 and 310,000 in 1995. This represents an annual growth rate of 7%, compared with a national average of 4% over the same period (Kiteme et al 1998). Where sub-divided ranches were not suitable for cultivation such as in central and northern Laikipia, settlement was limited. For example in the settlement scheme of Mutara in central Laikipia, only 39% of the subdivided plots were settled 23 years after the property was sub-divided. On other sub-divided ranches, only 10% or less of the sub-divided plots were ever settled (Kiteme et al 1998). These unsuccessful smallholder settlement schemes have since become informal grazing areas, attracting large number of pastoralists with their livestock from the north.

2.3 Land use

Today land in Laikipia is held under private, communal and government ownership (Fig 2). There are 48 large-scale ranches that are greater than 2,000 acres in size, under private ownership (mean=19,426 acres). These large-scale ranches cover a total area of 3,824 km² (39% of Laikipia). Twenty-one of these large-scale ranches are greater than 5,000 acres in size. Sub-divided ranches intended for smallholder settlement, under varying degrees of occupancy, cover 3,347 km² (34%) of Laikipia County. Eleven communally owned group ranches in north Laikipia cover 712 km² (7%) of Laikipia County. A large area of Laikipia is under government ownership. This includes national forest reserves, large-scale government ranches, veterinary outspans, land that has been bought by the government settlement trust fund and swamps (1,549 km² in total). The remaining parts of Laikipia are covered by urban areas.

The way in which land is used varies considerably from what might be expected based on tenure (Fig.3). With the exception of two properties, all ranches are used for commercial livestock production with sixteen of these properties also engaged in some form of wildlife-based enterprise (either tourism or wildlife research). Twenty-nine ranches are managed in favour of wildlife conservation. There are two ranches



'Laikipia has a long history of human occupancy and use'

[LEFT & BELOW] Plate 11 & 12: The original inhabitants of Laikipia left and enduring footprint on the landscape.
-Tui De Roy & Mark Jones



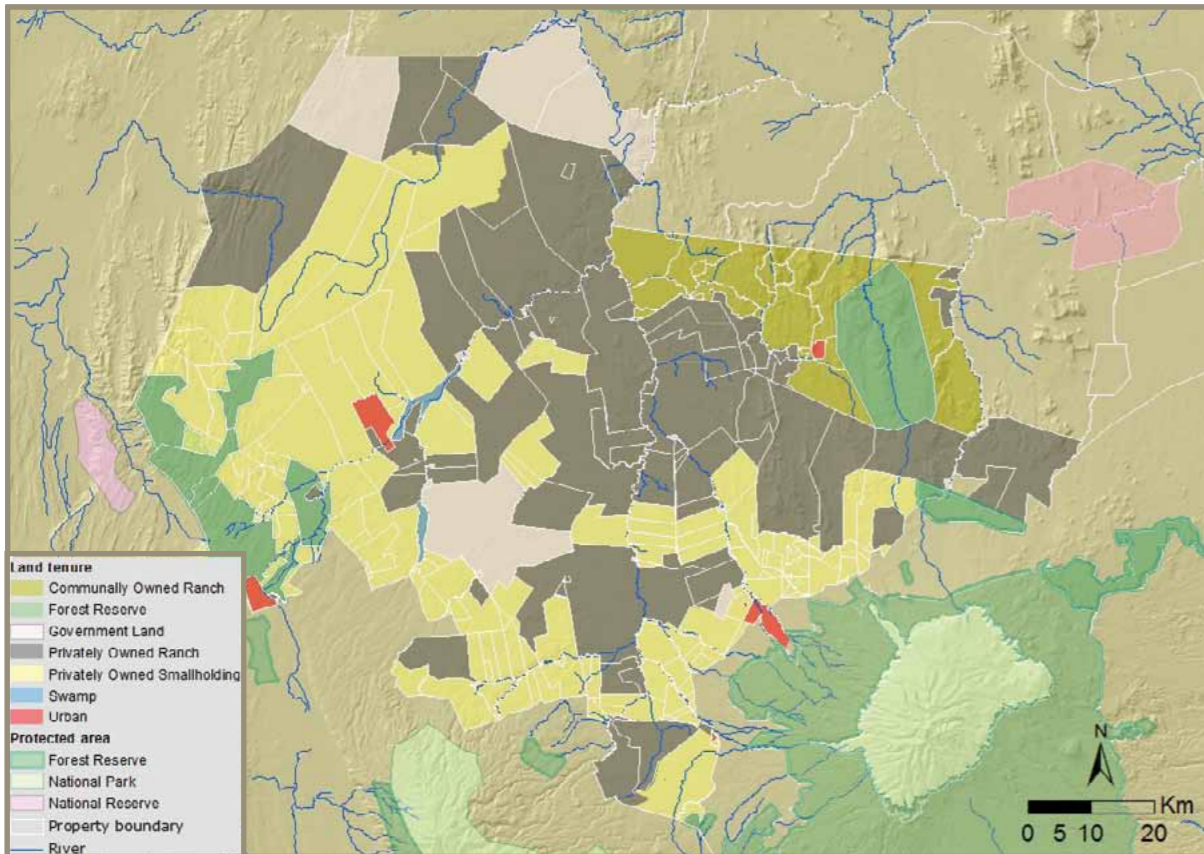


Figure 2: Land tenure in Laikipia County

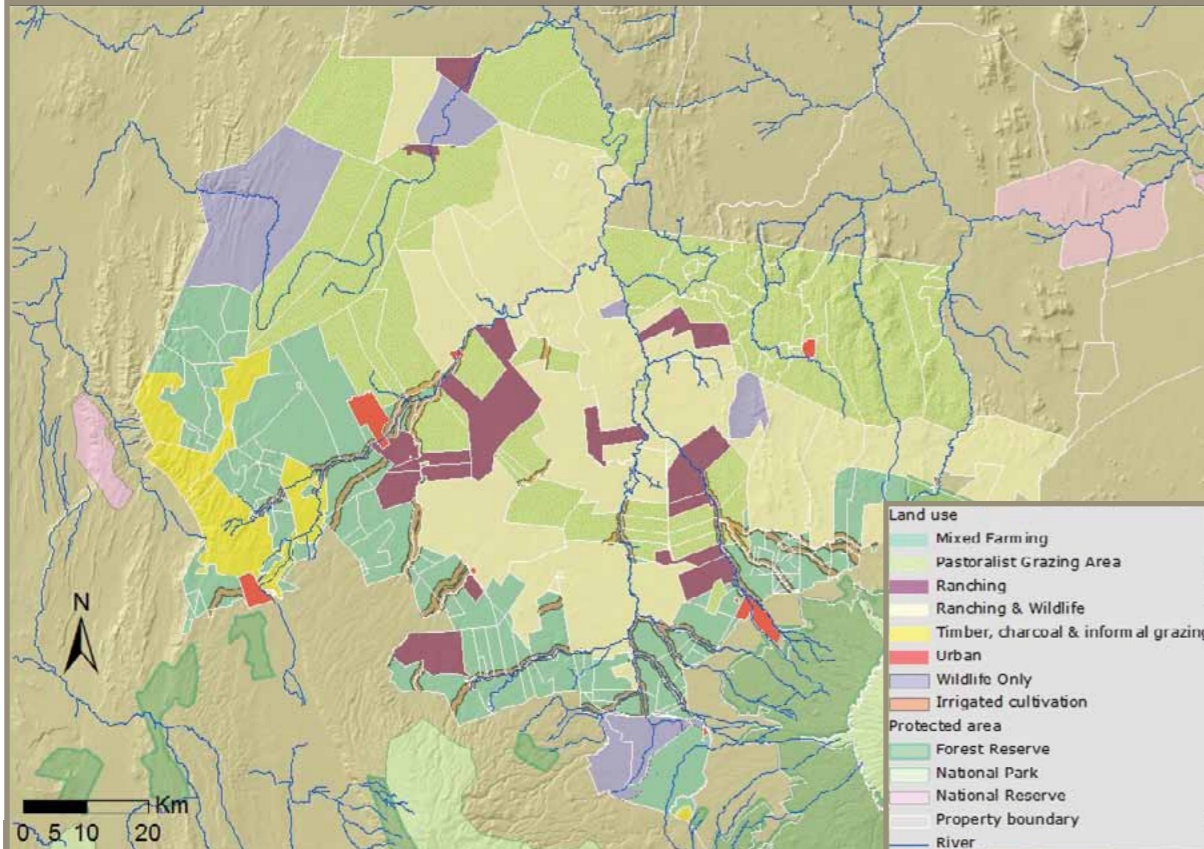


Figure 3: Land use in Laikipia County

where wildlife is actively excluded in favour of commercial livestock production. Eleven ranches are used during certain periods by the British Army for training purposes. All of this might be expected. What is less expected is the very large area of Laikipia that is used for subsistence livestock production, informally, by semi-resident pastoralists. Other than the relatively small area under communally owned group ranches, this area of informal grazing also includes: a) 5 privately owned ranches in the northern Mukogodo area where it appears private ownership has never been formally established; b) a private ranch in southern Laikipia that is effectively abandoned; c) 23 subdivided ranches covering 1,331 km², that have not been settled and are effectively abandoned; d) all of Laikipia's forest reserves, though particularly the northern forest reserves of Mukogodo and Ngare Ndare and; e) all government owned land with the exception of ADC Mutara Ranch. Therefore, a total of approximately 3,118 km² of Laikipia is used for informal grazing by semi-nomadic pastoralists. The remaining area of Laikipia, covering 2,103km², is under small-scale and commercial agriculture. This includes rain-fed cultivation, where possible, irrigated cultivation along the permanent rivers, combined with some subsistence livestock production, particularly in the more marginal areas of settled smallholder land. Both of Laikipia's swamps are under intensive irrigated cultivation. The forests of south-west Laikipia are heavily used, informally, for illegal timber extraction, charcoal burning and to provide informal livestock grazing for the surrounding residents. There is extensive commercial wheat and irrigated flower and vegetable cultivation in Eastern Laikipia, near the growing urban centre of Nanyuki.

The wildlife sector is relatively new to Laikipia. Historically there was some commercial hunting in Laikipia and, after this was banned, culling over the course of a pilot scheme in the mid 1990s. However, in the last 20 years there has been enormous growth in the wildlife-based tourism sector. This has been driven by changing attitudes among ranch owners and community groups and the need to diversify into new economic activities because of the escalating costs of livestock operations. Today the wildlife sector of Laikipia is internationally recognised.



[LEFT] Plate 13: The Laikipia Hartebeest, *Alcelaphus buselaphus*, a crossbreed between two overlapping subspecies, is the one antelope species that is in major danger of becoming extinct in Laikipia, having declined from over 3000 individuals in the 1980s, to around 600 today. The reasons for this decline are not fully understood
-Tui De Roy & Mark Jones

3. THE STRATEGY DEVELOPMENT PROCESS

The development of this conservation strategy broadly followed the methodology advocated in the “*Open Standards for the Practice of Conservation*,” (The Conservation Measures Partnership 2007) and involved the following steps:

3.1 Establishing the Project Team

A steering committee was established to provide oversight for the development of the conservation strategy. This committee is comprised of the following individuals: Dr Anthony King (Laikipia Wildlife Forum), Aggrey Maumo (Kenya Wildlife Service), Dr Charles Musyoki (Kenya Wildlife Service), Dr Margaret Kinnaird (Mpala Research Centre), Dr Chris Thouless, Michael Dyer (Borana Ranch), Dr Laurence Frank (Laikipia Predator Project), Richard Moller (Lewa Wildlife Conservancy), Richard Vigne (Ol Pejeta Conservancy), Dr Rosie Woodroffe (Samburu-Laikipia Wild Dog Project) and David Hewett (African Wildlife Foundation). It was subsequently expanded to include Njenga Kapiro (Zeitz Foundation), Charles Oluchina (The Nature Conservancy), Ben Wandago (African Wildlife Foundation), Josephat Musyima (Laikipia Wildlife Forum), Mordecai Ogada (Laikipia Wildlife Forum), Mike Watson (Lewa Wildlife Conservancy), Tobias Ochieng (Space for Giants) and Mr Wasua (Laikipia District Planning Officer). The Steering Committee met regularly to provide guidance and oversight for the development of the strategy.

Dr Max Graham (Space for Giants) was contracted to lead the development of the strategy under the steering committee and subsequently put together a small technical team. Dr Charles Musyoki of the Kenya Wildlife Service joined this technical team in 2010 and subsequently co-led the process. Others who provided technical support included: a) Lauren Evans who undertook a literature review to help identify an appropriate methodology and assisted with group interviews; b) Fiachra Kearney who also assisted with developing the methodology; c) Anne Powys who compiled the preliminary species lists for Laikipia County; d) George Aike (Mpala Research Centre) who helped with GIS compilation and mapping; e) Suzanne Stephens (Aspen Valley Land Trust) who undertook an assessment of models for the ownership and management of private conservation areas in Laikipia County and; f) Delphine King, who provided support with the synthesis of outcomes from steering committee meetings and the conservation strategy conference.

3.2 Situation assessment

The first step in the situation assessment was to identify relevant stakeholders within Laikipia County whose actions have implications for the future of wildlife. This was achieved by asking the following four questions (Younge & Fowkes 2003):

- **Who knows what?** Identifying the experts who can provide information on social, economic, political, biological and ecological factors affecting conservation in Laikipia
- **Who controls what?** Identifying landowners and users who influence allocation, management and use of resources, who is marginalised, who exploits Laikipia's natural capital

- **Who can support the process?** Identifying who has the network, resources, skills or position to assist the development and implementation of the strategy
- **Who can undermine the process?** Through destructive participation or failure to participate, reducing success of development and implementation

Subsequently a list of stakeholders was compiled to target for informal interviews and a list of topics created to help guide these interview sessions. These stakeholders were grouped into two broad categories: 1) Landowners and users and; 2) Other stakeholders. Two hundred and sixty-two landowners and users participated in interviews in 2010 and early 2011. A further 54 individuals from local government, research groups and conservation organisations were consulted over the conservation strategy process (Appendix 1).

The landowners and users who were interviewed included: a) owners and managers of large-scale ranches and conservancies; b) owners and users of smallholder farms; c) local stakeholders concerned with the use and management of abandoned smallholder land; d) the pastoralist occupants of Kirumun National Reserve; e) Representatives of the seven group ranches within the Naibunga Conservancy; f) representatives of the four group ranches of north-east Laikipia; g) representatives of the community forest associations in south-west Laikipia. The other stakeholder groups included: a) Members of research organisations; b) local government representatives c) the British Army; d) representatives of conservation organisations and; e) tourism operators.

The second step involved in the development of the situation assessment was a review of the available literature. There were three areas where background information was needed: 1) ecological information, in particular data on species and population distributions; 2) socio-economic information, particularly on land-use and; 3) institutional data, particularly on the structure and activities of conservation NGOs.

3.3 Strategic planning

Once the situation assessment was drafted and shared, the next step in the conservation strategy process was to undertake a strategic planning meeting with the steering committee to generate a draft strategy. Specifically the aim of the strategic planning meeting was to generate a vision, strategic objectives, targets and actions for the conservation strategy. To this end guidance notes were developed and a planning meeting held with the steering committee on the 6th of June, 2011. This resulted in the development of a draft strategy by the technical team.

The draft strategy was subsequently reviewed by the steering committee over a two day workshop on the 8th and 9th of March, 2012. This resulted in the production of a summarised strategy document for dissemination.

3.4 Conference and Stakeholder Validation

The final stage in the development of the conservation strategy was a stakeholders' conference, held on the 22nd of March, 2012 at the Sportsman's Arms Hotel in Nanyuki. Representatives of a cross-section of key stakeholder groups were identified by the steering committee and invited to participate in the conference. In total 88 individuals participated, from over 33 different organisations and government departments

(Appendix 2). A vision, goal and a set of objectives and targets were presented to the participants who broke up into five groups to undertake the following activities:

- Validate the vision, goals, objectives and strategic targets presented
- Identify a set of priority actions to be carried out and the stakeholders to lead these actions.

‘ Two hundred and sixty-two landowners and users participated in interviews in 2010 and early 2011. A further 54 individuals from local government, research groups and conservation organisations were consulted over the conservation strategy process ’



[ABOVE] Plate 14: Participants of the Conservation Strategy Conference -Delphine King

THE VISION

Laikipia County is recognised by Kenyans and the world as one of Africa's greatest conservation successes.

THE GOAL

By 2030 the people of Laikipia perceive wildlife as part of their heritage and a valuable asset and the diversity and populations of native species have been maintained or increased.

4. THE CONSERVATION STRATEGY

This wildlife conservation strategy is the result of the highly consultative process described above. It is designed to provide general guidance for the conservation and management of Laikipia's wildlife, given what is known about existing threats and opportunities. This strategy is primarily concerned with the conservation of large mammals, as it is this group that is best understood and is regularly monitored, providing the most amenable indicator of conservation success. However it is the intention that this strategy will guide decision making that will provide broader conservation benefits, aiming to secure a future for the wide range of indigenous animal and plant species that exist here. The strategy should be considered a live document that can be updated and modified as local circumstances change and as new challenges and opportunities emerge, and as more is learned about the species that we aim to conserve and the environment that they depend on. The document has been prepared to support local stakeholders with their decision making, primarily landowners, conservation organisations and local government. However this strategy document can also be used, where necessary, at the national level, particularly to help inform decisions taken at the national level that might have impacts on wildlife within Laikipia County. As a strategy, it is necessarily broad, as it is a negotiated document, reflecting the collective thinking of many individuals and institutions. It provides a vision and a goal for local stakeholders to collectively rally behind, and it provides five strategic objectives, each of which relates to five thematic areas that emerged through a long and intense consultative process. These themes are: 1) land use; 2) wildlife security; 3) ecosystem integrity; 4) collaboration and; 5) human-wildlife conflict. Strategic objectives are designed to be SMART-Specific, Measurable, Achievable, Realistic and Time-bound. Under each strategic objective, a set of targets has been created to guide the design of actions by local stakeholders at the point of implementation.

At the conservation strategy conference, held in March of 2012, local stakeholders validated the conservation strategy and proposed the implementation of a number of strategic actions to help achieve the specific targets identified. The latter represents the basis of a preliminary strategic action plan and is included in Appendix 3 for reference. However strategic actions remain to be validated at the point of implementation and are by no means final or exhaustive. It is important, therefore, that strategic actions continue to be refined and developed at the point of implementation so that a final, validated, strategic action plan can be generated.

It is also critical that efforts to implement this strategy are properly coordinated so that overall progress towards achieving the strategic objectives and associated targets described in this strategy can be monitored and measured and to ensure resources are pooled as effectively and efficiently as possible. To this end, there is a need for an active and well resourced local entity to coordinate and support local stakeholders to implement the conservation strategy.

‘ At the Laikipia Conservation Strategy Stakeholders' Conference 88 individuals participated, from over 33 different organisations and government departments.’

5. STRATEGIC OBJECTIVES

5.1 Space

STRATEGIC OBJECTIVE 1 Secure and Increase Space For Wildlife

5.1.1 Rationale

The single biggest factor that has enabled large mammals to persist and thrive in Laikipia County is the existence of a large, contiguous area of natural habitat. In total this area of natural habitat covers 3650 km² and includes land under private, communal and government ownership. All of this land holds conservation value. However currently the diversity and density of large mammals is greatest on the large-scale ranches and conservancies where human population densities are lowest and where wildlife is tolerated. As a consequence it is also within this area of conservation-compatible land-use that most of Laikipia's tourism operations are based.

Outside of this area of conservation-compatible land use, there is a large area of high potential wildlife habitat, covering approximately 3,196km² where wildlife currently competes with other forms of land-use, in particular commercial and subsistence livestock production by ranchers and pastoralists, respectively. This area of land offers some of the greatest potential for the expansion of conservation-compatible land-use in Laikipia. It is comprised of privately owned ranches that currently do not tolerate wildlife, communally owned group ranches, privately owned smallholder land that is not formally settled, national forest reserves and government owned properties, including Kirimun National Reserve.

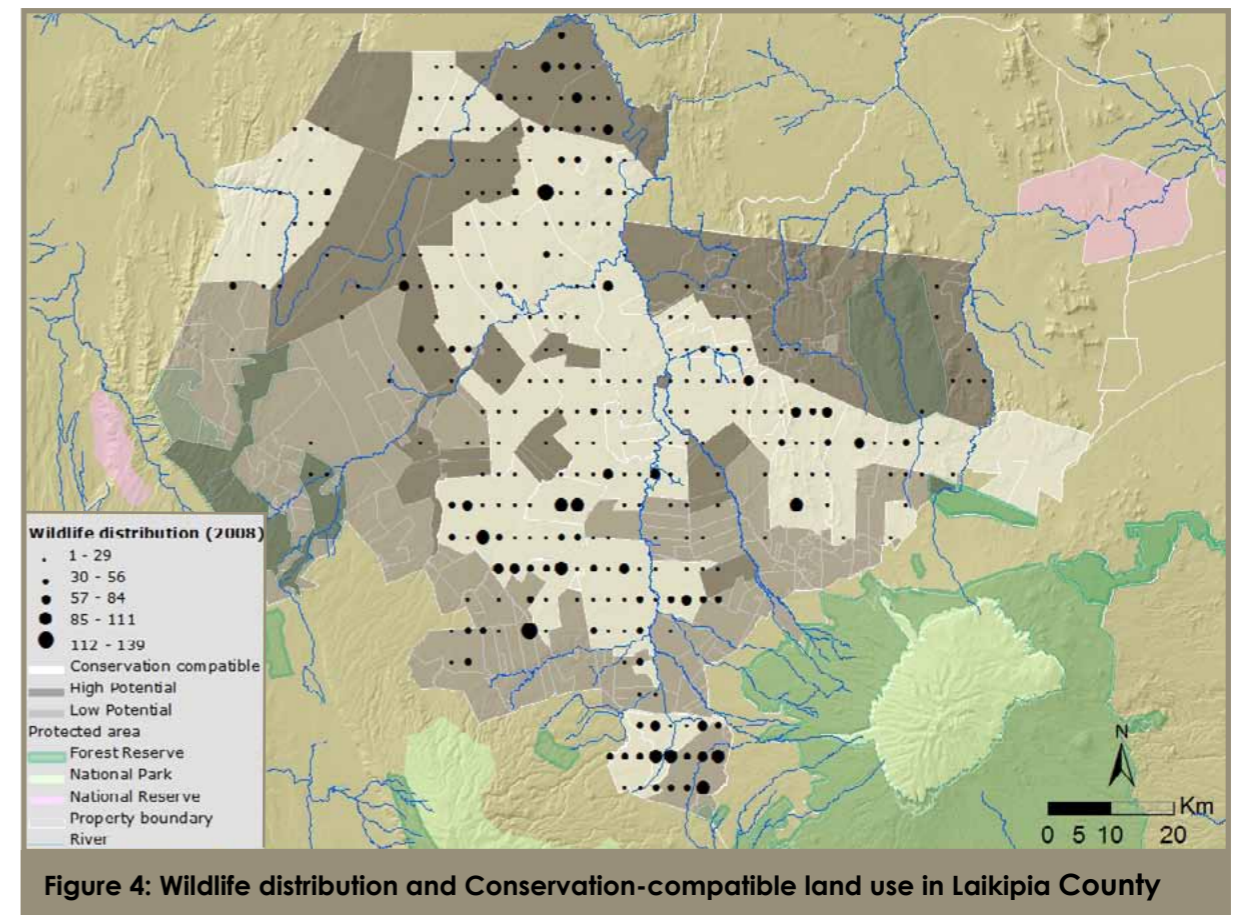
The rest of Laikipia County, covering 2,851 km², is relatively densely populated. While not of direct value to Laikipia's large mammals, this area is of relevance, from a conservation perspective because there are other, smaller, species that live or could live here and because it is the people who live here and their patterns of resource use and attitudes towards wildlife and the natural environment, that will largely determine the future of Laikipia's wildlife populations.

This existing spatial pattern of land use provides a framework for considering the threats to and opportunities for achieving this strategic objective

5.1.2 Threats

The greatest threat to the extensive area of contiguous natural habitat that exists in Laikipia County is land-use change, in particular the rapid expansion of smallholder farming and subsistence livestock production. There are a number of drivers of such land-use change, including:

- **Human population growth:** the human population of Laikipia has grown rapidly from 30,000 in the early 1960s (Kiteme et al. 1998) to 399,227 in 2009 today (Kenya National



Bureau of Statistics, unpublished data). This massive rate of population growth in Laikipia is a consequence of immigration of smallholder farmers from the south and pastoralists from the north in response to availability of land and associated resources that occurred with the sub-division of large-scale properties after Kenyan independence.

- **Political change:** Growing democratisation within Kenya and associated demands for equity over access to the country's resources has created a great deal of uncertainty over the future of natural habitat held under private ownership within Laikipia County. The spirit and intention of this political change is captured in the country's new constitution and nascent land policy and in the recurring claims of historical injustices made by some ethnic groups over the historical allocation of land in Laikipia (Hughes 2005). It is not clear how the new policies will be interpreted at the local level and this uncertainty could, potentially, undermine business confidence in existing patterns of land tenure within Laikipia.

- **Increasing costs:** Escalating costs of ranching and conservation operations present a major threat to the underlying financial viability of conservation-compatible land-use in Laikipia County. In most cases such forms of land-use are not profitable, incurring significant costs for landowners. The potential for further taxes (local and national) to be levied over these operations presents a significant threat to the continued management of land for conservation purposes. In addition, increasing land values are creating growing opportunity costs for landowners currently engaged in conservation-compatible land use in Laikipia, posing a threat to pro-conservation properties that are financially vulnerable.

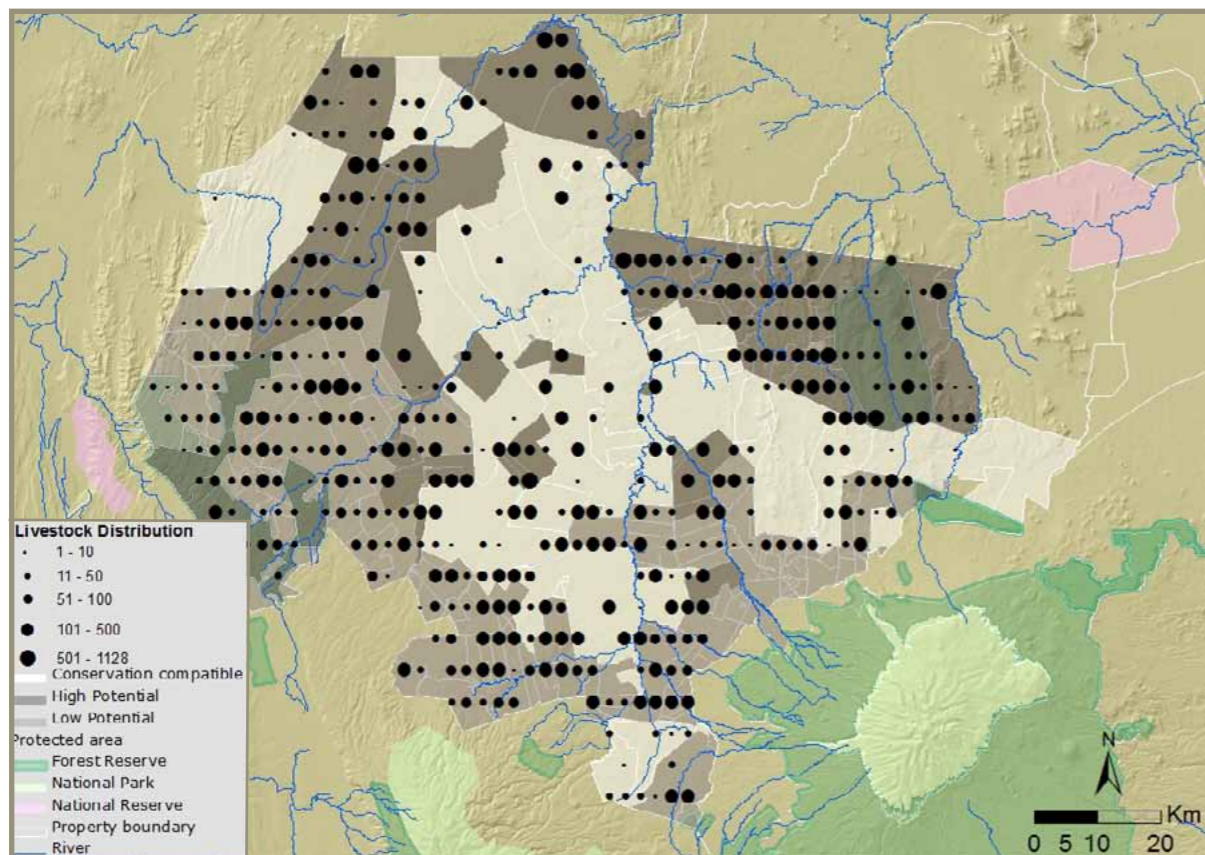


Figure 5: Distribution of livestock in relation to conservation compatible land use in Laikipia County

5.1.3 Opportunities

To maintain or expand the area under conservation compatible land-use within Laikipia, it must be valued at local and national levels. There are several options for achieving this:

BOX 2: KIRUMUN NATIONAL RESERVE

Kirumun covers 41,360 acres bordering the Ewaso Ngiro River in north-west Laikipia. Previously owned by the Livestock Marketing Division and subsequently the National Youth Service, it was formally gazetted a National Reserve in 1991 with ownership vested in the Laikipia County Council. The reserve contains one of Laikipia's single largest areas of open grassland, recently identified from an aerial survey as a major holding ground for endangered Grevy's zebra among other plains game. This combined with its proximity to ranches holding large wildlife populations (Loisaba & Mugie) and its spectacular topography, in the east, means that Kirumun has high potential as an area for wildlife conservation and tourism. As a consequence there have been many attempts to try and bring the reserve under some kind of formal management. For example in 1992 a management plan for the reserve was developed. Then in 2005 a scoping report for the development of a management plan was produced. In 2006 a proposal was produced to develop Kirumun National Conservancy. In 2009 the County Council requested support from conservation

organisations for a familiarisation tour of the Maasai Mara which was subsequently organised. In 2010, another familiarisation tour was organised for the County Council, this time to Samburu District. However despite all these efforts, Kirumun National Reserve currently remains little more than a "paper park" and the county council has been unable to deliver a management presence on the ground in the 21 years since its creation.

One of the major challenges with developing Kirumun as a National Reserve is that it is home to a large population of semi-resident Samburu pastoralists, numbering 302 households constituting 2,667 people, based on a census undertaken in 2005. They use the reserve to support their livestock, numbering 13,000 head of cattle and 31,000 sheep and goats. In addition the title deed for the property has yet to be issued to the County Council and is possibly contested by the Ministry of Livestock and the National Youth Service. The latter are demanding compensation of Ksh 26 million for their infrastructure. Perhaps the greatest challenge facing the future of this national reserve is the lack of capacity within the County Council to take on a project of this nature. This may change with the creation of a devolved County Government and Governor from 2013. One possible option here would be a public-private partnership to enable investment. However the perspectives of the resident pastoralists would need to be considered and carefully managed if this reserve is to have any future.

5.1.4 Income

- **Nature-Based Tourism:** Tourism has developed significantly in Laikipia, from just a single lodge on Colcheccio Ranch in the late 1970s to 28 tourism operations today, with over 1000 beds among them. Between 2000 and 2007, there was a 104% increase in the number of tourism bed nights in Laikipia. Given the high level of growth in recent years, there is likely to be considerable room for further development in this sector. The low and high ends of the market offer perhaps the greatest potential for further development in Laikipia.

- **Ecosystem payments:** Deforestation accounts for some 17% of greenhouse gas emissions. There is believed to be more carbon in the world's forests than in its atmosphere (Cotula & Mayers 2009). This has led to the voluntary carbon market diversifying into projects aimed at reducing emissions from deforestation and forest degradation (REDD). REDD projects are expected to make significant investments to prevent carbon emissions caused by forest conversion in developing countries (McGregor 2010). The world's first ever REDD carbon offset project was completed in 2011 at Rukinga Wildlife Sanctuary, located between Tsavo East and Tsavo West National Parks. There are likely to be similar opportunities in Laikipia. The design of REDD projects in Laikipia should ensure that benefit flows are socially equitable and are accrued at the local level, particularly within areas of high potential wildlife habitat that are currently under forms of land-use that are not compatible with wildlife and where direct benefits derived from wildlife are lacking.

- **Livestock development:** In recent years there have been a number of developments in the livestock sector that may help improve revenues to conservation-compatible lands in Laikipia. The first is the growing domestic demand for beef in urban

areas in Kenya, particularly Nairobi. The second is the emergence of private sector initiatives to process and market meat. Farmers Choice PLC is currently processing between 450 and 600 head of cattle a week to supply the domestic market (Thomson 2006). Thirdly there is growing recognition among practitioners of a need for a policy shift among international trade bodies that allows for the export from Africa of live-stock derived "commodities" (Thomson 2006). These are value added products that by their nature or as a consequence of the process in their production do not contain harmful or transmittable diseases of any kind (e.g. dairy products and deboned beef). While this is unlikely to happen in the immediate future, it is certainly an area that those involved in the livestock sector in Laikipia need to be aware of and lobby for.

- **Education:** Less than 20% of Laikipia's residents have attended secondary school and fewer than 4% have any tertiary education (GOK, unpublished data, 2009). As a consequence there is very little local understanding of the value of local ecosystem services provided by Laikipia's remaining areas of natural habitat. Ensuring Laikipia residents and government representatives are well informed of the value of natural habitat and associated wildlife, through various communication and education mediums, is critical if they are to be supportive of future conservation action.

- **Equity:** There is increasing acknowledgement of the importance of the private sector for delivering land-based conservation strategies, internationally (Mitchell 2005). Within the context of Laikipia, where issues of equity and access over land and associated resources are contentious, land-based conservation investment, if carried out sensitively, could secure and increase space for wildlife, while fulfilling political imperatives and increasing public support for wild spaces. There are several options for achieving such conservation investment:

- **Land Purchase:** In recent years several privately owned large-scale properties have been purchased by international conservation organisations, to establish wildlife conservancies, owned and managed by not-for-profit entities. The ownership and management of such properties has and can be structured to deliver public benefits at local and national levels.

- **Land Leases:** Conservation lease options exist across a range of land-tenure arrangements including government owned properties, privately owned small and large holdings and communally owned land. Conservation leases provide a mechanism through which land ownership is maintained while enabling the introduction of conservation-compatible land use options by a third party. In some cases this may provide a cost-effective and politically robust option for the introduction of conservation management into new areas of high potential wildlife habitat, increasing the number and range of landowners, government entities and community groups who receive benefits associated with wildlife.

- **Conservation Easements:** These are rights granted to a third party over a parcel of land that restricts use to activities that are conservation-compatible, for public benefit. So, for example, a conservation easement may place restrictions on cultivation or the erection of barriers such as fences or livestock densities above a certain limit-all with a view to creating a supportive natural environment for wildlife. In Kenya environmental easements are technically possible, through the Environmental Management and Coordination Act (EMCA) of 1999. However this currently requires a court application,

an unnecessarily confrontational process. The draft wildlife bill contains provisions for consensual easements which will be a useful tool, once the bill is passed. Until then, conservation leases provide a more attractive land-based investment strategy for conservation purposes.

- **Co-management agreements:** These are agreements that enable resources, such as land and grazing to be co-managed by several different entities. Within the context of Laikipia, co-management agreements, while legally weak, could potentially facilitate the collective management of grazing & wildlife resources by different stakeholders (for example landowners, migratory pastoralists and third party conservation organisations), enhancing the flow of public benefits, without necessitating the cost of purchasing or leasing land.

CONSERVATION TARGETS

- 1.1. **By 2030 the Laikipia County Government provides incentives to landowners for the conservation of wildlife**
- 1.2. **By 2030 the owners of the 3,650 km² of land that currently exists under conservation-compatible land use are committed to maintaining that land under conservation-compatible land use**
- 1.3. **By 2030 the owners of at least half the 3,196 km² of land offering high potential wildlife habitat (where wildlife is currently absent or exists at low numbers) are committed to conservation-compatible land-use**
- 1.4. **By 2030, within the context of stable wildlife populations, more than half of Laikipia's residents view wildlife as an asset.**



[ABOVE] Plate 15: There is great hope that revenue generation among Laikipia's semi-arid rangelands can be enhanced through conservation-compatible livestock production to supply emerging domestic and overseas premium beef markets. -Tui De Roy & Mark Jones

5.2 Security

STRATEGIC OBJECTIVE 2 Strengthen security for wildlife in Laikipia County

5.2.1 Rationale

Illegal killing of wildlife in Laikipia falls into three categories. The first is illegal killing of wildlife for meat. The second is the illegal killing of wildlife for the trade in wildlife parts, such as ivory, rhino horn, bones and animal skins. The third is the illegal killing of wildlife as a consequence of human-wildlife conflict. The latter is dealt with under the fifth strategic objective in this document.

The illegal killing of wildlife for bush meat (subsistence and commercial) is possibly the greatest source of wildlife decline, nationally, and has led to the virtual extirpation of large mammals valued for their meat, outside of the area of conservation compatible land-use, within Laikipia County. It is this form of hunting that also presents a severe threat to animals moving between areas of conservation-compatible land-use, through areas of high potential wildlife habitat where they are hunted, creating wildlife "sinks" within the Laikipia landscape. Recent analyses of aerial count data suggest that numbers of large mammals have declined significantly since 2001 (O'Brien et al. 2012), with hunting for meat a highly likely cause. The extent to which the hunting for meat in Laikipia is subsistence or commercial is not yet clear and should be a priority for future research.

While there are several species that are vulnerable to local hunting to supply the illegal international trade in wildlife parts (including large cats, for example), it is elephants and rhinos that are best understood and therefore provide a useful indicator for understanding this particular threat within Laikipia County.

Today there are 4,840 black rhinos that remain in the wild, the vast majority of which are found in South Africa, Namibia, Zimbabwe and Kenya (Knight 2011). In response to global demand in rhino horn, Kenya's black rhino numbers dropped from an estimated 20,000 in 1970 to less than 400 individuals by 1990 (KWS 2007). A national level response, spearheaded by the Kenya Wildlife Service, promoted the use of discrete, fenced sanctuaries to protect the country's remaining rhinos. This approach has been extremely successful with fenced sanctuaries across the country collectively experiencing a 9.43% increase in rhino numbers between 2002 and 2006 (KWS 2007). Today all of Kenya's 5 private rhino sanctuaries occur in Laikipia, holding 53% of Kenya's total population. Of these 290 are black rhino (48% of Kenya's total population) and 251 are white (75% of Kenya's total white rhino population). However in recent years there has been a huge surge in rhino poaching across Africa. In 2010 there were 333 rhinos killed in South Africa and 41 rhinos killed in Kenya. The latter is the highest rate of poaching in the history of Kenya's rhino conservation programme (Knight 2011). Laikipia has not been immune to this poaching pressure, with rhinos lost to poaching on each of Laikipia's rhino sanctuaries to supply the illegal trade in rhino horn.

Between 1973 and 1990 the international trade in ivory contributed to Africa's elephant population declining by more than half. Elephant numbers in Kenya alone are believed to have dropped from around 167,000 to 20,000 (Douglas-Hamilton, 1987). Over this period Laikipia County became a refuge for elephants dispersing from extreme hunting pressure to the north. In 1977 an aerial count found 710 live elephants to 2793 carcasses in neighbouring Samburu, compared with 2093 live elephants to 51 dead elephants in Laikipia (Thouless 1993). Prior to this period there were few elephants seen in Laikipia. As a consequence of the ban in the trade in ivory in 1989 and a robust anti-poaching effort by the government of Kenya, through the Kenya Wildlife Service, poaching levels declined to negligible levels, with elephant numbers in both Laikipia and neighbouring Samburu increasing by around 4-5% per annum up until 2010 (Litoroh et al. 2010). Over the course of the last three years, however, there has been a surge in elephant poaching for the ivory trade and once again it appears that elephants across the continent are being affected. The Laikipia/Samburu region is no exception with a significant increase in poaching across all land-use types (KWS, unpublished data).

5.2.2 Threats

There are both local and international factors contributing to an environment in which the illegal hunting for meat and/or other wildlife parts could continue to present a major threat to the wildlife of Laikipia County.

- **Poverty and limited livelihood options:** The growing number of people in Laikipia with limited employment or livelihood options presents perhaps the single greatest threat to wildlife species coveted for their meat or to supply parts to the illegal international trade, particularly outside of the existing area that is under conservation-compatible land use.
- **International demand for wildlife parts:** Growing affluence in Asia is increasing household level consumption and associated demand for wildlife products traditionally coveted by Asian communities, particularly in China. This includes ivory, rhino horn and parts of large cats, among others. With limited supply, this growth in demand is driving up prices and attracting criminal syndicates, leading to escalating levels of poaching of populations of vulnerable species.
- **Wildlife policy and law:** Kenya's existing wildlife policy was created in 1975 and associated legislation was enacted in 1976, through the Wildlife Conservation and Management Act (subsequently revised in 1985 and 1989). Given the significant declines in wildlife numbers since the 1970s both inside and outside of national parks (Western et al 2009), existing policy and law are wholly inadequate for creating an enabling and supportive environment for wildlife conservation in Kenya. Existing penalties for illegal killing of wildlife and/or the illegal trade in wildlife parts are of particular concern, being so low as to provide very little in the way of disincentives.
- **Rising cost of wildlife conservation:** The combination of inadequate penalties, poor law enforcement, proliferation of arms and the rising value of wildlife parts is increasing poaching pressure and associated security problems on private, government and community lands currently accommodating wildlife in Laikipia. Properties that are

particularly under threat are those that host rhinos and elephants. As a consequence the cost of protecting these vulnerable species, in particular rhinos, has increased significantly in recent years. In some cases these costs have become prohibitive, resulting in three rhino sanctuaries opting to have their rhino populations removed by the KWS, to other sites in the country.

5.2.3. Opportunities

- **The Wildlife Bill:** Kenya's 2007 draft wildlife policy is in the process of being passed into legislation, through the creation of a new wildlife bill. The policy captures the desire among some Kenyans to diversify income streams that might be derived from wildlife (including consumptive use) and makes provisions for increasing penalties associated with illegal killing of wildlife and the trade in wildlife parts. However there is sufficient ambiguity within the associated draft bill as to necessitate further lobbying among those who accommodate wildlife and those concerned with wildlife conservation, for specific legislation to: a) create an enabling environment for wildlife conservation outside of government protected areas among private and community lands and; b) create a major deterrent for those involved in illegal killing of wildlife and the trade in wildlife parts.

- **Community Policing:** Within Kenya, there is growing government-level support for community policing initiatives, to support the regular police. For example security personnel working on wildlife conservancies in Laikipia have been granted Kenyan police reserves status, providing them with powers equivalent to regular police officers. Where combined with high level training, this has greatly enhanced local capacity to manage poaching threats. The expansion of such community policing capacity should be a priority, particularly into areas of Laikipia County where wildlife poaching and associated insecurity is a major challenge.

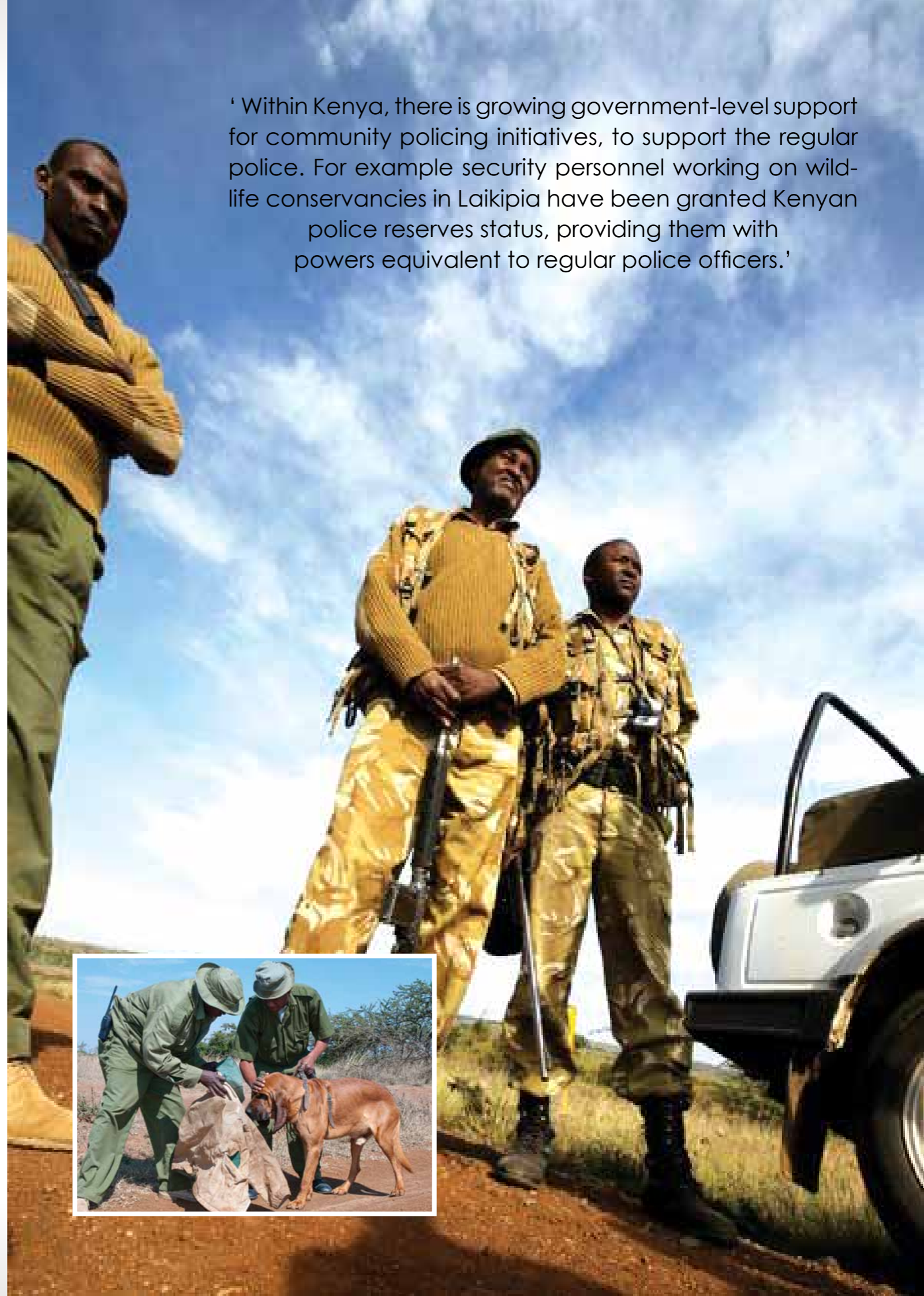
- **Training:** In Kenya there are enormous problems with the prosecution of individuals involved in wildlife crimes. There are several reasons for this. Firstly, many security personnel lack the training on how to handle evidence at the scene of a crime. Secondly, there is a lack of knowledge among magistrates and the judiciary of the value of wildlife to Kenya's national economy and the importance of issuing high penalties. There is evidence to show that where training on these issues is provided, it can greatly improve prosecutions of those involved in wildlife crimes. Key to such training is the establishment of strong partnerships among those involved in wildlife conservation and those involved in law enforcement, particularly the police and judiciary.

STRATEGIC TARGETS

- 2.1. By 2030 the problem of illegal killing of wildlife has been eliminated
- 2.2. by 2030 populations of wildlife that are vulnerable to local extinction, through hunting pressure, recover by 10%

[RIGHT] Plate 16: Community Policing Initiatives, often using specialised tracker dogs like these, have greatly enhanced security for people and wildlife in Laikipia County-Tui De Roy & Mark Jones
Plate 17: Kenya Wildlife Service Rangers-Flora Bagnol

' Within Kenya, there is growing government-level support for community policing initiatives, to support the regular police. For example security personnel working on wildlife conservancies in Laikipia have been granted Kenyan police reserves status, providing them with powers equivalent to regular police officers.'



5.3 Ecosystem Integrity

STRATEGIC OBJECTIVE 3

Maintain and enhance habitats and connectivity to maximize species diversity, ecosystem services and human well being.

5.3.1 Rationale

Laikipia contains a great diversity of plants and animals. A preliminary species inventory recorded 540 species of birds, 95 species of mammals, 87 species of reptiles and amphibians, almost 1000 invertebrates and over 700 species of plants. A number of these species are known to be rare at local, national and international levels (Table 1). Only the mammal and bird lists generated by the survey are likely to be close to complete. There are still many, perhaps most, indigenous plant & animal species that are yet to be identified and recorded in Laikipia County.

The high level of wildlife species diversity in Laikipia is primarily dependent on two factors. The first is the extent of different types of natural habitat. Previous research suggests that Laikipia may contain as many as 17 different habitat types (Taiti 1992). However with the aim of discussing general trends, six broad habitat types that are better understood, are considered here (LWF, 2011). These are: 1) Grassland & open woodland; 2) Acacia-commiphora woodland; 3) Upland dry forest; 4) Evergreen bushland; 5) Rivers and Wetlands and; 6) Scarps and Kopjes (Box 3). Recent research has shown that the extent of several of these habitat types has changed in recent years, in some cases, significantly, with associated implications for the wildlife species and populations they contain.

The second factor contributing to Laikipia's diversity of wildlife is "connectivity", the degree to which the landscape facilitates or impedes wildlife movement among and between these natural habitats (Bennett 2003). Wildlife movement within the Laikipia landscape and between Laikipia and the adjacent landscapes is important for: 1) Enabling access to resources that are scarce in space and time; 2) Enabling wildlife to respond to sudden events and change (e.g. climate change); 3) Preventing negative impacts associated with isolation (e.g. habitat degradation associated with overcrowding); 4) Enabling genetic exchange for the maintenance of genetically viable populations.

The maintenance of large and diverse habitats and connectivity among and between these habitats will enable the Laikipia landscape to be ecologically resilient, with its wildlife species and populations better able to withstand long term pressures associated with existing and future human impacts and natural events (some of which remain poorly understood). High diversity, high connectivity and associated resilience are, however, not just important for the maintenance of wildlife species diversity. They are also critical for the wellbeing of local people, through the provision of local resources (such as food, fuel, building materials, medicine and income from wildlife-based enterprises), local ecological services (such as water regulation and the control of soil erosion) and less direct, global ecological services (such as carbon storage and nutrient and carbon cycling).

BOX 3: BROAD HABITAT TYPES FOUND WITHIN LAIKIPIA

- **Grassland & open woodland:** This broad habitat types covers more than half of Laikipia, with species composition varying with soil composition. Black cotton soils support "Whistling Thorn" grassland, with stunted *Acacia drepanolobium* trees. On red soil, grass cover is sparser and other *Acacia* species occur, such as *A. seyal* and *A. mellifera*.
- **Acacia-Commiphora woodland:** Occurs in the dry central and northern parts of Laikipia, dominated by *Acacia* trees, particularly *A. mellifera*.
- **Upland Dry Forests:** While historically forests covered much of Laikipia, today only small pockets in the south-west and larger pockets in the north-east have survived, dominated by African Olive, *olea africana* and Cedar, *Juniperus procera*. Upland forests contain perhaps the greatest diversity of species of any single habitat type in Laikipia County.
- **Evergreen bushland:** This habitat type covers large areas of south-central and West Laikipia. In south-central Laikipia it is dominated by *Euclea divinorum*, a persistent evergreen shrub that out-competes most other species, with the exception of *Acokanthera schimperi* and *Carissa spinosa*. In West Laikipia, along the rift valley escarpment, this habitat type is dominated by *Leleshwa* bush, *Tarchonanthus camphorates* and increasingly, in overgrazed areas, Sand Olive, *Dodonaea angustifolia*.
- **Rivers and Wetlands:** Riverine forests, dominated by yellow fever trees, *Acacia xanthophloea*, were once common along Laikipia's perennial and annual rivers but are now rare. Similarly the two wetlands of Laikipia, dominated by papyrus, have largely been drained and cleared for cultivation. As a consequence the many animals that depend on these habitats are now locally vulnerable.
- **Scarps and Kopjes:** These rare rocky habitats provide sanctuary for highly diverse and relatively rare plant communities, including patches of dense deciduous forest.

There are a number of major threats and opportunities for achieving this strategic objective:

5.3.2 Threats

While not all reasons for habitat change are currently known or understood, uncontrolled use and exploitation of some of Laikipia's habitats by local people has had an overwhelming impact on their extent and status. In some cases, this has been measured. For example indigenous forest cover within the forest reserves of south-west Laikipia (Marmanet, Lariak, Ol Arabel, Rumuruti and Uaso Narok) has reduced by more than 80% since 1976 as a consequence of uncontrolled extraction of forest products with most of this forest loss occurring since 2002 (MRC, unpublished data). Similarly, unregulated river water abstraction has had a major impact on the flow of Laikipia's

permanent rivers. For example the median decade river flow at Archer's Post dropped from 9 m³/s in the 1960s to 4.5 m³/s in the 1970s to 1.2 m³/s in the 1980s and 0.9 m³/s in the 1990s (Gichuki et al. 1998). The impacts of uncontrolled access and use of Laikipia's grasslands, woodlands and wetlands by people, while not yet measured with accuracy, is known to be similarly significant, in some areas (through activities such as over-grazing, charcoal burning and slash and burn agriculture, respectively). In all cases, there are clear statutory regulations and associated regulatory authorities intended to govern the management of such natural resources. However currently such laws are not enforced by the government authorities and as a consequence, they are not respected by local people. Even worse is where government authorities facilitate over exploitation of local natural resources, through corrupt practices. This poor governance presents the greatest threat to the extent and status of many of Laikipia's remaining natural habitats.

- **Land tenure:** There is an area of land that covers approximately 25 % of Laikipia, which is not formally occupied but is instead used as an open access resource by local people, particularly pastoralists but also charcoal burners, subsistence hunters and others. It is comprised of between 25 to 30 former large-scale ranches, now subdivided and owned by private land-buying companies whose members are from central Kenya and who have no apparent interest in living in Laikipia (e.g. Narok Ranch). It also includes a great deal of public land, such as that held by the Settlement Trust Fund (e.g. large parts of P&D), National Youth Service (NYS MarMar) and the Laikipia County Council (Kirumun National Reserve). The existing tenure of these lands is resulting in patterns of land-use that present a major threat to the status of the natural habitats and associated wildlife species they contain. In addition patterns of land use within these "abandoned lands" are spilling over, creating pressure on adjacent lands and threatening natural habitats and the species they contain within areas of conservation-compatible land-use.

- **Barriers:** Electrified fences and/or other barriers (such as dry stone walls) have been erected in Laikipia with the aim of protecting people from wildlife or wildlife from people or to protect private property (e.g. grazing resources) or any combination of these reasons. These electrified fences present barriers to movement of some wildlife species. It is not entirely clear which species are affected and the extent to which they are affected or which sorts of barriers affect which sorts of wildlife movement and this should be a priority for future research. While in some cases it might be desirable to curtail wildlife movement (for example to prevent them from raiding smallholder crops), in other cases restricting wildlife movement could have undesirable impacts (such as genetic inbreeding, loss of access to critical resources, the possible loss of woodland habitats to over browsing by mega-herbivores and/or the concentration of wildlife into places where they are not welcome by local people).

- **Sinks:** Within Laikipia there are areas of land on which people, for a range of reasons, present major threats to dispersing or migrating wildlife. In some cases certain species of wildlife are killed while moving through this land, effectively turning it into a population "sink". Such sinks greatly affect the ecological integrity of the Laikipia landscape and should be a priority for future action.

- **Alien Species:** There is growing concern about the negative impacts of invasive alien species on indigenous flora and fauna in Laikipia. However these impacts are not

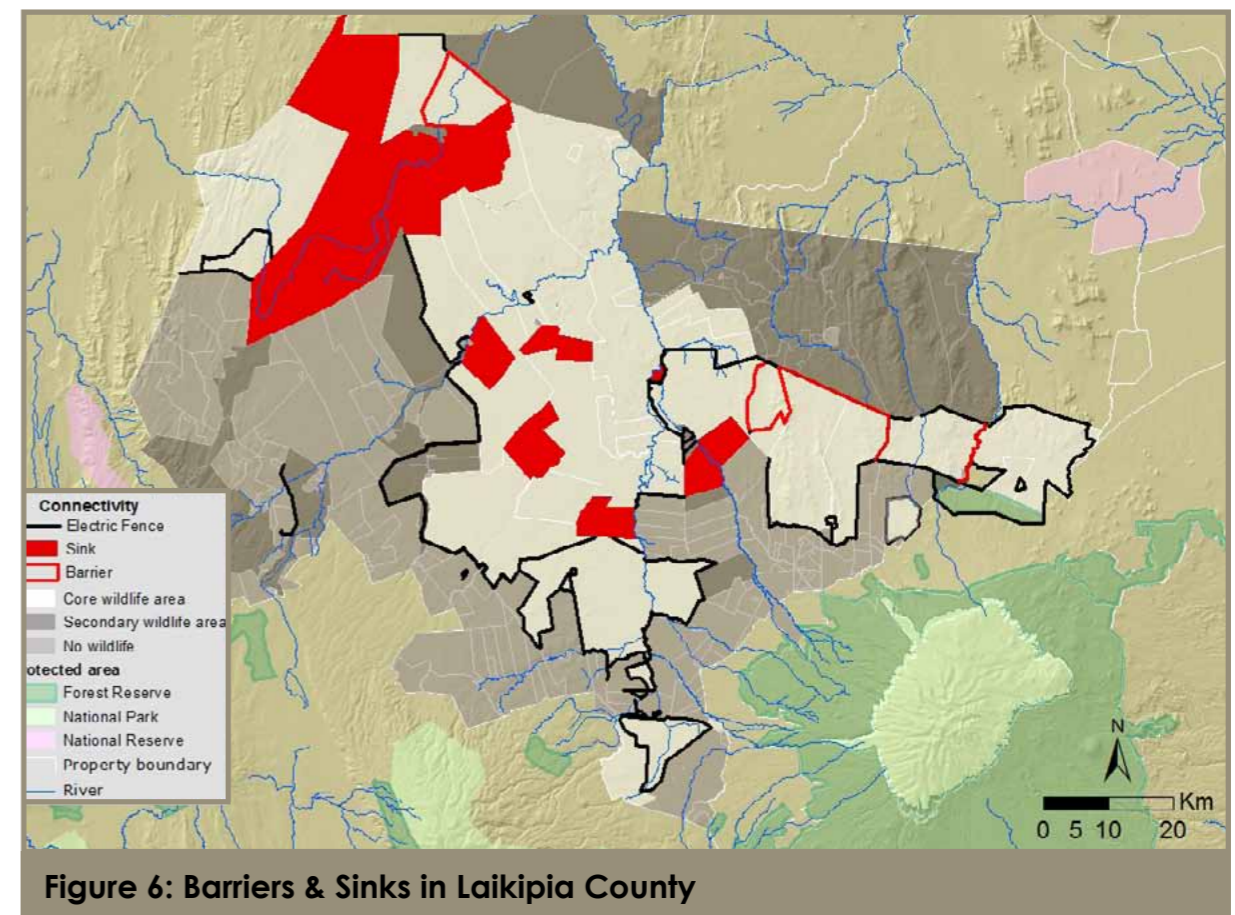


Figure 6: Barriers & Sinks in Laikipia County

well understood and should be a priority for future research. Perhaps one of the most obvious alien species to have become invasive is the prickly-pear, *Opuntia* sp. Others include the coypu (*Myocastor coypus*) & Louisiana Red Swamp Crayfish (*Procambarus clarkii*).

5.3.3 Opportunities

- **Community-based natural resource management:** National level policy and associated legislation has and will continue to create provisions for devolved, community-based management of natural resources. This includes river water, forests and wildlife. For example the Water Act of 2002 supports the establishment of Water River Users Associations (WRUA) as a mechanism to self-regulate water use and resolve conflicts among users of rivers water. Similarly the Forest Act of 2005 prescribes the establishment of Community Forest Associations (CFAs) to play a co-management role, where appropriate, in the management of national forest reserves. Similar provisions are anticipated in the forthcoming wildlife bill, through provisions for the establishment of wildlife conservancies, both private and community owned. These provisions provide a significant opportunity in Laikipia but only if combined with major investment in capacity building to enable community-based institutions to play an effective role in the governance of natural resources.

- **Investment into "abandoned" & community lands:** There is growing interest within the government at local and national levels and among conservation organisations of the opportunity to improve management of natural resources on Laikipia's "abandoned" sub-divided ranches and public lands, together with community owned land.



‘ STRATEGIC TARGET:By 2030 the Ewaso Ngiro and its tributaries flow year round ’

‘ Theoretical plans to establish wildlife corridors between Laikipia and the adjacent landscapes were recently validated when elephants successfully used the new Ngare Ndare Forest-Mt. Kenya wildlife corridor. This provides some hope for similar plans for a corridor between Laikipia and the Aberdares. ’



[ABOVE] Plate 18: Over abstraction from Laikipia's permanent rivers is a major source of conflict with downstream users and a huge challenge for Laikipia's future-Tui De Roy & Mark Jones
 Plate 19: Elephant moving through a recently created underpass in The Ngare Ndare Mt Kenya elephant corridor-Susie Weeks, Mt Kenya Trust



It is believed that this might be achieved through conservation investment support from appropriate third parties. While it is not yet clear how nascent land laws and associated institutions will support such initiatives, there already exist some precedents for these sorts of investments. What is critical in securing such opportunities in Laikipia is the presence of local institutions that are well respected and have sufficient capacity and resources to invest in the time consuming and sensitive process of negotiations with landowners and users within the relevant target areas.

- **Corridors & smart fences:** Theoretical plans to establish wildlife corridors between Laikipia and the adjacent landscapes were recently validated when elephants successfully used the new Ngare Ndare Forest-Mt. Kenya wildlife corridor. This provides some hope for similar plans for a corridor between Laikipia and the Aberdares. Within Laikipia there exist clear opportunities to connect areas of conservation-compatible land-use, through strategic investment in areas of high potential wildlife habitat, where land-use is currently incompatible with wildlife conservation. Further opportunities exist, within the context of Laikipia, to assess and build on the gaps created in electrified fences (constructed around wildlife conservancies) to allow wildlife movement between areas of similar natural habitat. Similarly there exist certain fence designs which appear to allow the movement of most wildlife species, with the exception of rhinos. Understanding what options exist for enabling desirable wildlife movement through fenced landscapes should be a priority for further research and conservation action.

- **Proactive & adaptive management:** Within certain parts of Laikipia experiments are often carried out with a view to protecting or enhancing certain habitat types. For example in some areas, small mega-herbivore exclusions zones have been created, using electrified fences, with a view to protecting woodland cover. In other areas trials have been undertaken with the elimination of invasive species. In yet other areas, holistic grazing management trials are underway with a view to enhancing rangeland management. This sort of pragmatic experimentation is critical for learning lessons to inform future land management decisions for conservation. However currently such experiments are rarely, if ever, systematically monitored and subsequent lessons, are rarely shared. There is therefore enormous scope to support adaptive management and learning in Laikipia, through improved coordination of habitat management experiments, associated monitoring and the subsequent sharing of results among landowners and other practitioners.

- STRATEGIC TARGETS**
- 3.1. **By 2030 the area under indigenous upland forest has increased by 50%**
 - 3.2. **By 2030 appropriate management action has been taken to maintain or enhance areas of natural habitat that are currently vulnerable and in decline.**
 - 3.3. **By 2030 the Ewaso Ngiro and its tributaries flow year round**
 - 3.4. **By 2030 management plans are implemented for each of Laikipia's wetlands**
 - 3.5. **By 2030 wildlife is able to move unhindered within Laikipia and between Laikipia and the adjacent ecosystems**

5.4 Collaboration

STRATEGIC OBJECTIVE 4

Promote effective collaboration among stakeholders to enable effective wildlife conservation in Laikipia County

5.4.1 Rationale

While Laikipia County contains a high diversity and density of wildlife, it contains no officially designated government protected areas (with the exception of Kirumun National Reserve). Instead the wildlife here lives within a landscape that is owned and used by a myriad of different individuals, institutions and communities. This is also a landscape that falls under the jurisdiction of a number of different government ministries and administrative departments that have very different, possibly competing, development priorities. For example the ministries of agriculture, livestock development, forestry and wildlife, and tourism, clearly have very different priorities. In addition Laikipia County's wildlife has attracted a large number of researchers, each with their own objectives, and a range of different local and international conservation organisations that often have different priorities. Within this context, one of the greatest challenges to conservation in Laikipia, and one of the greatest opportunities, is coordinating all of these different stakeholder groups, to ensure they work collaboratively and that their work is complementary.

There are a number of threats and opportunities for ensuring stakeholders work collaboratively to enable effective wildlife conservation in Laikipia County.

5.4.2 Threats

- **Landowners and land users:** While the owners and users of land under conservation compatible land use, share many common challenges, they do not always work together, in collaboration. Because of the nature of some of the enterprises (tourism and conservation) that are operated on this land, landowners are, in some cases, competing. However, given that wildlife is a common resource, it is absolutely critical that landowners, particularly those engaged in conservation-compatible land-use, work together to address common challenges. Another major threat to effective conservation and management of wildlife and the habitats they depend on across the Laikipia landscape is the relationship between different types of land-users. Small-scale farmers, ranch/conservancy managers and pastoralists have very different land-use strategies and associated objectives. This can result in conflict and a deterioration in relationships among these different land-user groups (for example when wildlife strays from land under conservation-compatible land-use and destroy crops belonging to neighbouring smallholders or when pastoralists illegally enter private property to access pasture for their livestock during times of stress). Unless these different land-user groups can work together to try and understand and support respective livelihood goals, across the broader landscape, it will be very difficult to effectively conserve wildlife and the underlying natural habitats on which they depend, over the long term.

[RIGHT] Plate 20: Wildlife research in Laikipia is thriving, providing an opportunity to inform policy and practice across the region-Tui De Roy & Mark Jones Plate 21: Women making elephant dung paper in the Mukogodo Forest-Anne Powys

- **Government:** There are situations in which different government sectors and their associated activities come into conflict with the wildlife sector, potentially undermining investments in wildlife conservation and associated enterprises both in Laikipia and at the national level. Vision 2030, Kenya's development blue print, explicitly recognises the economic importance and potential of wildlife-based tourism for Kenya's future. However the different sectors of government and their associated policies and laws need to work in harmony to provide an enabling environment for the wildlife sector to continue to thrive in Laikipia County. Specific government ministries that the wildlife sector would benefit from engaging with for future planning purposes and within the context of Laikipia are: the Ministry of Agriculture, the Ministry of Forestry and Wildlife, The Ministry of Livestock Development, the Ministry of Lands, the Ministry of Water and Irrigation and the Ministry of Tourism.

- **Research:** Laikipia has become a major site for ecological research in Africa, particularly on relationships between human land use and the natural environment and hosts hundreds of foreign and Kenyan researchers annually, through several Laikipia-based research institutions and centres (e.g. Mpala Research Centre & the Centre for Training and Integrated Research in Arid and Semi-Arid Development). Despite the huge capacity that is invested in research in Laikipia, local research needs are perhaps not as well articulated as they could be and as a consequence there is a gap between some of the research that is undertaken in Laikipia County and the actual business of conserving and managing wildlife and other natural resources as undertaken by practitioners. This is sometimes referred to as "the knowing-doing" gap (Knight et al 2009).

- **Conservation:** Competitiveness among individual conservation organisations results in duplication of effort, conflict in the field and can confuse target communities and donors. There is a very real need to ensure that individual NGOs collaborate to collectively identify priorities for conservation and agreeing on roles and responsibilities for implementing activities that meet these priorities. This will greatly enhance the presentation of a unified front to donors, target communities and other stakeholders. It could also help to ensure that resources are more efficiently and effectively deployed towards common conservation goals.

' Competitiveness among individual conservation organisations results in duplication of effort, conflict in the field and can confuse target communities and donors. '



BOX 4: THE LAIKIPIA WILDLIFE FORUM

“The mission of the LWF is to promote the conservation of wildlife and a healthy natural environment, by bringing the people of Laikipia together to conserve wildlife and sustainably use the natural resources on which their lives depend”

The Laikipia Wildlife Forum is unusual primarily because it is a membership organisation with a broad and representative governance structure. The LWF was first established in 1992, with the support of the Kenya Wildlife Service by private and communal landowners with a common interest in managing, conserving and profiting from wildlife in and around Laikipia. Today it is a non-profit company limited by guarantee. Membership is open to any landowner or land user in Laikipia County or any individual with an interest in the area. Current membership is comprised of 36 large-scale ranches, 47 community groups, 50 tour operators, 54 individuals and 8 interest groups. What is unique about the LWF is its governance structure. The Directors are elected by the membership of five geographical units in Laikipia County, effectively representing the interests of some 400,000 Laikipia residents. The membership contributes a significant proportion of the organisation’s running costs, making it financially secure and relatively donor independent in a way that other conservation organisations are not. Over and above the elected directors, additional directors are co-opted onto the board because of their institutional affiliation, expertise or experience. So, for example, the LWF board currently includes directors from Mpala Research Centre, The Centre for Training and Integrated Research in ASAL Development (CETRAD) and the Kenya Wildlife Service (KWS). The Board is supported by a series of sub-committees: Security, Conservation, Education, Tourism and Finance. This structure gives the LWF a combination of local legitimacy, political support and technical support in a way that is possibly unique among conservation organisations.

5.4.3 Opportunities

- **The Laikipia Wildlife Forum (LWF):** As a strong local membership organisation, The Laikipia Wildlife Forum is in the unusual position of being able to help improve and broker important relationships for addressing the challenge of collaboration and coordination among different stakeholders and sectors in Laikipia County for wildlife conservation. However in order for the LWF to play this role effectively, it must have both a large and representative membership and the technical capacity to effectively engage with its members, at the local level and across its diverse membership base, whilst still providing a voice at the national level for cross-cutting issues concerning wildlife conservation.

- **Devolution:** The process of devolution of a large portion of government administration and revenue to the county level, as envisaged under the recently promulgated constitution (GOK 2010), creates a significant opportunity to foster positive dialogue between local level government and all stakeholders involved in the wildlife sector in Laikipia.

- **The Wildlife Bill:** The current draft of the wildlife bill provides for the creation of wildlife conservation area committees, within each County. The proposed composition of these committees includes representatives from different government ministries (livestock, agriculture, planning and wildlife) as well individuals drawn from the local wildlife sector, providing a potentially very useful platform for resolving any issues that may conflict with the wildlife sector.

STRATEGIC TARGETS

- 4.1 By 2017 the County Government has in place a clear integrated land use plan that recognises and protects the needs of wildlife
- 4.2 By 2017 membership of the LWF increases tenfold from 2012 levels and is representative of the people of Laikipia
- 4.3 By 2017 a framework is established to foster demand driven research in Laikipia County
- 4.4 By 2017 wildlife management decisions taken in Laikipia, recognise uncertainty, and are informed by the results of applied monitoring and research



[ABOVE] Plate 22: Wildlife research in Laikipia is thriving, providing an opportunity to inform policy and practice across the region-Flora Bagnol

5.5 Human-Wildlife Conflict

STRATEGIC OBJECTIVE 5 Minimise Costs of Living with Wildlife

5.5.1 Rationale

In Laikipia the existence of large areas of natural habitat, used in such a way that wildlife thrives and can and does generate economic benefits, surrounded by areas of land used for cultivation or subsistence livestock production where wildlife is not tolerated, inevitably leads to incidents of human-wildlife conflict. This occurs mainly in the form of crop and livestock depredation. Crop-raiding, particularly by elephants, is an enormous challenge in Laikipia County, undermining food security in some areas and leading to conflict between those who support wildlife and those who do not. Similarly predation on livestock can have significant impacts on local livelihoods, leading to the retaliatory killing of predators, often with the use of banned poisons, creating cascading impacts throughout the food chain and affecting other species of wildlife, such as endangered vultures. Incidents of people being killed by wildlife, while uncommon, are by far the most shocking, creating outrage and anger among the communities where such incidences occur.

The resentment among those who bear the cost of wildlife in Laikipia, such as those who suffer from crop-damage or those who lose livestock to predators, can undermine wider development and biodiversity projects, and key relationships among local stakeholders. At times resentment over incidents of human-elephant conflict is so great that it takes on a political dimension, fanning feelings of discontent and leading to incidents of civil unrest (such as street protests, for example).

For all these reasons minimising the costs that wildlife incur is critical if wildlife and wildlife conservation is to secure broad public support from the people of Laikipia. There are both challenges and opportunities for achieving this strategic objective.

5.5.2 Threats

- **Unclear Responsibility:** One of the greatest challenges for effectively mitigating human-wildlife conflict is identifying who should be responsible for its management. While, legally, the national wildlife authorities are mandated to manage the problem of human-wildlife conflict, in practice they do not have the resources or capacity to effectively address this problem wherever it occurs, particularly outside of national protected areas. The people on the ground who have to bear the cost of living with wildlife, rarely, if ever, have the resources or technical capacity to manage the problem themselves and do not have the authority to do so. Within the Laikipia context, the issue of responsibility is further complicated by the presence of lands where wildlife is tolerated and in some cases, actively conserved, by landowners and community groups. It is the boundaries between these lands where wildlife is tolerated and lands where wildlife is not tolerated (e.g. smallholder arable farms), that need to be managed. However it is not clear who should be responsible for managing such

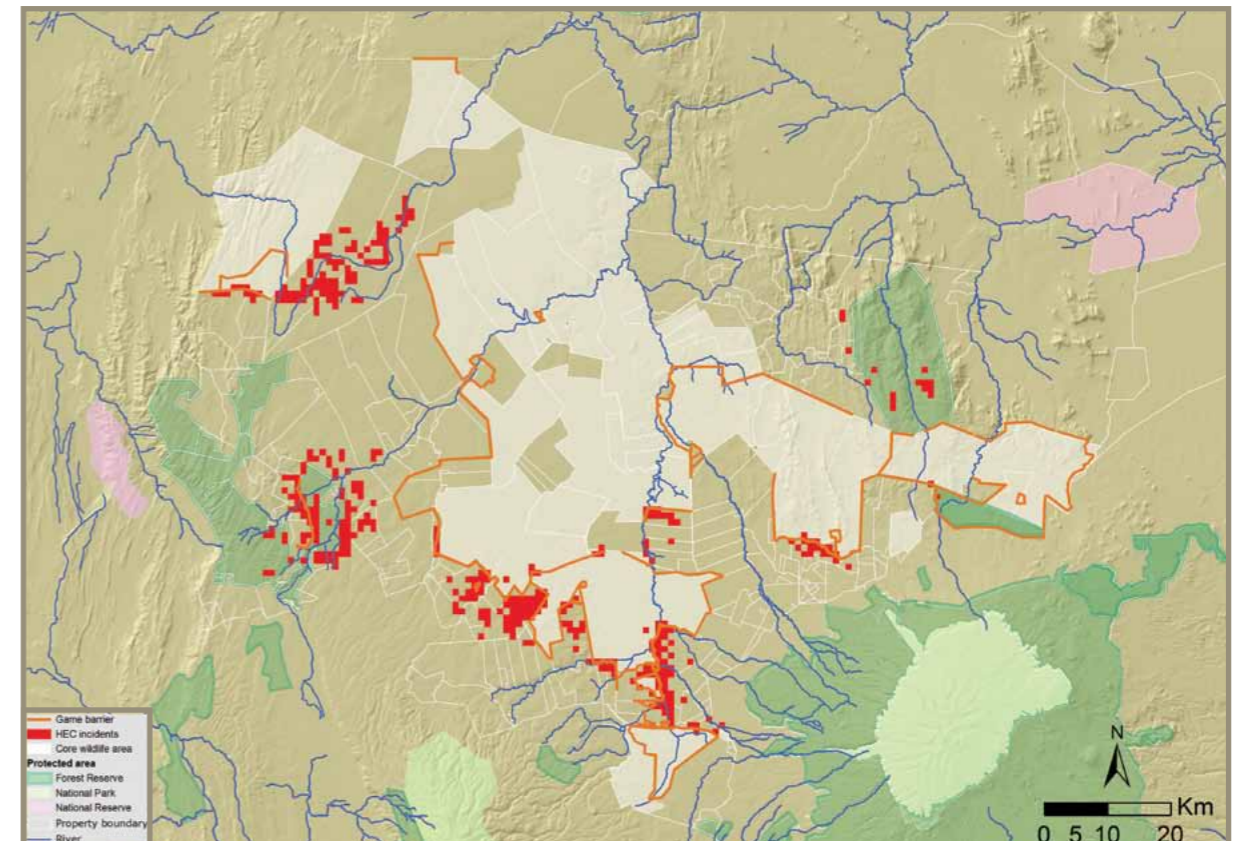


Fig. 7 Distribution of crop-raiding by elephants in Laikipia County

boundaries. In some cases owners of land where wildlife is tolerated have taken the decision to take full responsibility for managing these boundaries, in the interest of maintaining positive relationships with their neighbours, through the construction and maintenance of barriers to wildlife movement. However in other cases landowners have not taken on this responsibility, creating uncertainty as to who should bear the cost of managing the boundaries that separate lands where wildlife is tolerated from lands where wildlife is not tolerated.

- **Bad fences:** Enthusiasm for electrified fencing projects in Laikipia County has out-paced practical considerations of what it will actually take to ensure they work. Clear ownership, local support from among the communities where they are being built, sufficient resources for ongoing maintenance, appropriate design and fence enforcement are all critical for ensuring that electrified fences are effective at controlling wildlife movement (Graham & Ochieng 2010). However, in practice, many electrified fences have been built without considering these criteria and as a consequence fail in their intended objectives. The existence of low specification or poorly maintained electrified fences provides “training opportunities”, encouraging elephants to learn how to overcome a number of different designs. As a consequence the problem of fence breaking is escalating, as elephants learn from one another, creating a very difficult situation to manage.

- **Problem Animal Control (PAC):** There is evidence to suggest that the elimination of persistent problem animals, whether crop-raiding elephants or stock-taking predators, is an important tool in the management of human-wildlife conflict (Graham et al

2009a; Woodroffe & Frank 2008). It is an essential tool in cases where a problem animal presents a major threat to human life. However existing use of this management tool is limited in its effectiveness for several reasons. Firstly the skills required to humanely euthanize problem animals are in decline. This is because there are very few opportunities for wildlife authority personnel to gain practical experience in PAC given current policy and law. As a consequence problem animal control operations are sometimes unsuccessful, at times targeting the wrong animal and sometimes resulting in undesirable outcomes. Secondly, concerns expressed by international animal rights groups and associated pressure on the national wildlife authority may be leading to a decline in the number of occasions that PAC operations are authorised, particularly in relation to elephants and large predators. This is creating uncertainty over policy and protocol and is leading to escalating levels of human-wildlife conflict in situations where known individual problem animals continue to damage property and threaten local lives and livelihoods without action being taken. Thirdly KWS personnel are not always able to respond to incidents of human-wildlife conflict in a timely manner. The absence of timely or adequate responses to incidents involving persistent problem animals can create extremely high resentment among affected communities, leading to individual or groups of wild animals being killed.

- **Compensation:** Under the new draft wildlife bill there is a provision for government compensation for costs incurred to people from human-wildlife conflict, including crop-damage and livestock predation (GoK 2011; Part XII, section 71 (3)). While in theory it is highly desirable to ensure those that incur costs from human-wildlife conflict are compensated, this is very difficult to achieve in practice. Historically statutory compensation schemes in Kenya and elsewhere have been abandoned because of issues to do with fraud and ultimately the difficulty in verifying individual claims. So this part of the proposed bill needs to be treated with extreme caution. There are voluntary schemes in place which provide an indication as to the viability of a compensation scheme in Laikipia. Perhaps the best known is the Mbirikani Predator Compensation Fund in the Amboseli-Tsavo Ecosystem of Kenya. Simply, this compensates Maasai pastoralists where it can be demonstrated that they have lost livestock to predators. While initially viewed favourably, there were problems with the scheme, ranging from attempts at fraud to continued elimination of predators, to a decline in vigilant defence of livestock (Maclennan et al 2009). In very recent years it has even been suggested that this compensation scheme is actually leading to lions being killed in sites outside of the designated compensation zone in a cynical attempt to expand the compensation scheme into new areas so that more people can benefit from compensation (L. Frank pers. comms.). This case study provides a glimpse of the potential problems associated with a compensation scheme. There are many others (Montag & Patterson 2001).

- **Uncertainty:** There is a great deal of uncertainty regarding the effectiveness of individual tools used in the management of human-wildlife conflict. While many interventions have and continue to be used in human-wildlife conflict management (e.g. lethal control, translocation, barriers, compensation schemes, chilli fences and recently, bee hive fences), there are very few rigorous independent studies that have been undertaken to establish how effective these interventions are. This uncertainty makes it difficult to take informed decisions regarding the management of human-wildlife conflict.

‘ The absence of timely or adequate responses to incidents involving persistent problem animals can create extremely high resentment among affected communities, leading to individual or groups of wild animals being killed. ’



[ABOVE] Plate 23: Grain store damaged by elephants -Max Graham, *Space for Giants* Plate 24: Poisoned elephants -Batian Craig, *Ol Pejeta Conservancy* Plate 25: Predator proof bomas have virtually eliminated nocturnal predation of livestock in some of Laikipia's private ranches -Tui De Roy & Mark Jones

9.3 Opportunities

- **Devolution:** Under existing and proposed policy and law, there are opportunities for responsibility for the management of human-wildlife conflict to be devolved to the local level. Broadly, such devolution provides a mechanism for those who possess the appropriate skills and/or those who bear the cost of human-wildlife conflict, to manage it. For example individuals or groups who possess the skills to effectively manage problem animals could, potentially, be given responsibility for problem animal control (PAC). This could, potentially, greatly increase the timeliness and effectiveness of responses to incidents.

- **Good Fences:** In a recent review, the following factors were identified as important for ensuring the success of electrified fences in mitigating human-wildlife conflict in Laikipia (Graham & Ochieng 2010):

- **Ownership:** The fence must be effectively owned with clear and unequivocal responsibility for fence maintenance and management accepted by a specific stakeholder or stakeholder group.

- **Support:** Where relevant, the fence should be strongly supported by the identified beneficiaries and this support must be secured prior to fence construction.

- **Resources:** It must be clear what resources are required for ongoing fence maintenance prior to fence construction and it must be clear that those accepting responsibility for the long term maintenance of the fence are committed to providing these resources in perpetuity

- **Design:** Fences should be constructed in line with designs based on the performance of effective fences, located along hard boundaries. There must be the capacity to modify the design and configuration of these fences over time as individual animals learn to break them.

- **Enforcement:** Where well maintained high specification fences are being broken by individual animals, high level patrols of vulnerable sections and the careful management of persistent fence breaking animals, may be necessary.

Within Laikipia ensuring the above lessons are applied to existing and planned fencing projects will greatly mitigate human-elephant conflict and this should be a priority for action. Arguably the fencing project that deserves the greatest priority for applying these lessons is the West Laikipia Fence Project (Box 5).

- **Improved livestock herding:** Research has shown that there are two factors that greatly enhance the prevention of incidents of predation among both commercial and subsistence livestock producers: 1) The construction of robust “predator proof” corrals for holding livestock at night; 2) Vigilant herding, particularly during the day. Within Laikipia there have been significant improvements in both these areas among commercial ranches and conservancies (Ogada et al. 2003) and there is room for these gains to be shared across other properties in Laikipia. Similar outcomes have

been achieved on communally group ranches and other pastoralist occupied lands (Woodroffe et al 2007). It is here where perhaps the greatest investments are needed to minimise losses to predators.

BOX 5: THE WEST LAIKIPIA FENCE

The West Laikipia Fence Project is the single biggest investment in reducing human-elephant conflict to have occurred in Laikipia's history. Once complete it will cover a total distance of 163 km and cost an estimated US\$ 1.5 million dollars. The construction of the first and second phases of the fence had an immediate impact, with crop-raiding reduced significantly on adjacent smallholder farms. Unfortunately since 2010 difficulties have emerged with the upkeep of specific sections of fence by designated managers and as individual fence breaking elephants have learned to break through the fence. However if these issues are addressed (possibly, temporarily, by resourcing a third party to maintain vulnerable sections) then the West Laikipia Fence could mitigate human-elephant conflict on the adjacent smallholder farms to minimal levels. There remain several steps to completing the West Laikipia Fence project, including: 1) constructing the third phase (from Ol Maisor to the Laikipia Nature Conservancy; 2) Supporting the Laikipia Nature Conservancy to upgrade and take on management of their perimeter electrified fence and; 3) The removal of elephants that remain in pockets of forest in south-west Laikipia.

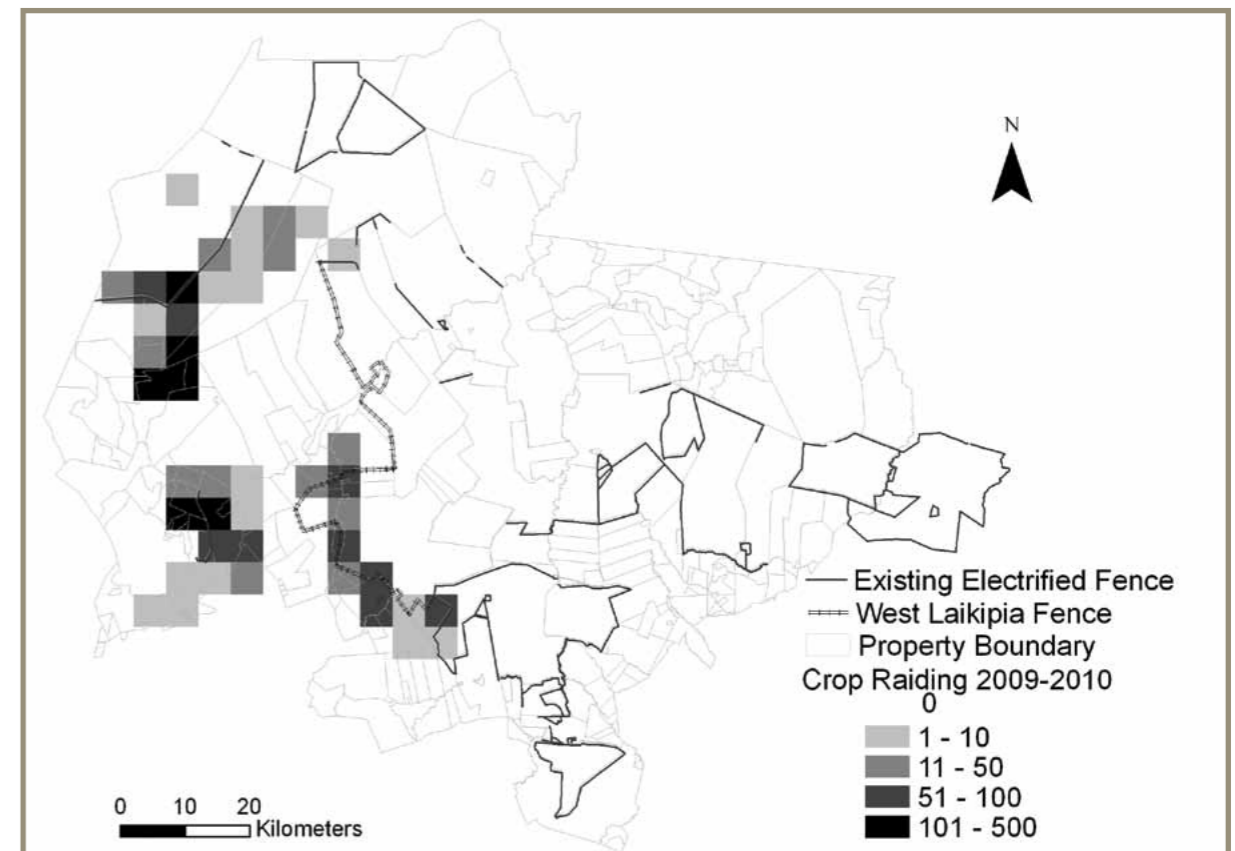


Fig. 8 West Laikipia Fence Project

• **Improved monitoring and communication:** It is apparent that the effectiveness and timeliness of communication among pastoralists/farmers and between pastoralists/farmers and wildlife management authorities is critical for successful management of human-wildlife conflict. There are two emerging areas of action that could greatly enhance such communication. The first is the use of community scouts in monitoring and reporting human-wildlife conflict incidents. These are individuals, typically nominated by local community leaders, often with basic writing skills and basic arithmetic, recruited and trained to support monitoring of wildlife and human-wildlife conflict. Scouts can provide both timely information to enable rapid responses to incidents requiring urgent attention and longer term monitoring data that can support decisions on major interventions. The second area of great potential in the management of human-wildlife conflict in Laikipia is the strategic use of mobile phones (Graham et al. 2011). Mobile phones can directly improve human-wildlife conflict management in three key areas: 1) Mobile phone communication can be effective in providing early warning. Early warning is known to be important for enabling the prevention of human-wildlife conflict (Sitati & Walpole 2006); 2) Mobile phone communication can improve coordination of responses to incidents, particularly by the wildlife authorities and; 3) Mobile phone communication helps to bridge potentially problematical communication between the various groups involved in human-wildlife conflict management.

• **Farm-based deterrents:** In recent years practitioners have encouraged the use of affordable farm-based deterrents to prevent crop-raiding by wildlife, such as elephants and primates. The aim of such an approach is to enhance and compliment traditional deterrents that can be realistically taken up and sustained by smallholder farmers (Osborn & Parker 2003). Such deterrents include chilli fences, loud noise makers, watchtowers with spotlights, chilli smoke and more recently, beehives (Sitati & Walpole 2006; Graham & Ochieng 2008; Hedges & Gunaryadi 2009; King 2011). These methods are likely to grow in importance in Laikipia in areas that are not supported by the presence of an effective electrified fence. However there have been few objective studies of the performance of individual deterrents and therefore further trials are needed to better understand their effectiveness. Furthermore when using such deterrents, it is important that consideration is given to the following factors : 1) Early-warning of crop raiding has been identified as an important element in successful deterrence of elephant crop raids (Sitati et al. 2005; Sitati & Walpole 2006; Hedges & Gunaryadi 2009); 2) The availability of labour is key in successful farm-based deterrents, making communal guarding of crops necessary when labour is scarce at the household level (Graham & Ochieng 2008; Hedges & Gunaryadi 2009). Therefore future work involving farm-based deterrents in Laikipia should focus on these particular aspects.

• **Awareness creation:** It has been argued and widely accepted that participation and inclusive learning are important in conservation (Petty 2002). This is particularly true for conservation initiatives that seek to ensure that the local community have access to knowledge, both about the conservation resource and the conservation strategy (Jacobson et al. 2006). In these situations conservation education has become an important component of conservation programmes. In Laikipia interactive drama has been demonstrated as an extremely effective way of generating public understanding of conservation problems. This is because it breaks barriers of literacy, and creates opportunities to discuss complex and controversial issues in a relatively safe and open environment. Experience of the use of plays in human-wildlife conflict mitigation efforts

in Laikipia has been extremely promising. "It taught those who took part things they did not know about elephants, about wildlife officials, and perhaps about themselves. It contributed to debate, and to the beginning of changes in attitudes and changes in behaviour," (Graham et al. 2009b). Laikipia could benefit from its continued use, both in assisting with community involvement in human-wildlife conflict management and with broader conservation challenges.



' Interactive drama... taught those who took part things they did not know about elephants, about wildlife officials, and perhaps about themselves. It contributed to debate, and to the beginning of changes in attitudes and changes in behaviour, '

STRATEGIC TRAGET

- 5.1 **By 2030 responsibility for managing the hard boundaries that separate land committed to conservation from land where wildlife is not tolerated is clearly defined and designated**
- 5.2 **By 2030 problem animal control (PAC) is timely and effective**
- 5.3 **By 2030, with the context of a stable elephant population, crop-raiding by elephants in Laikipia reduced by 90% from 2012 levels.**
- 5.4 **By 2030, within the context of stable predator numbers, depredation has been reduced by 90% from 2012 levels**

[ABOVE] Plate 26 & 27: Interactive drama has transformed the way some conservation organisations communicate at the local level - Max Graham, Space for Giants

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Appendix 1: List of individuals interviewed and consulted to develop the situation Assessment between 2010 to 2011

No.	Name	Organisation	No.	Name	Organisation	No.	Name	Location	Name
Private Ranches/Conservancies									
1	Tom Silvester	Loisaba	14	Peter Kermul	Ilmotiok	11	John Kamau	John Kamau	Matanya-Resident
2	Peter Glover	Enasoit	15	Jonathan Ole Rana	Ilmotiok	12	Bancy Wachoka	Bancy Wachoka	Matanya-Resident
3	Kimani Kuria	Oi Jogi	16	Philip Ole Larpei	Mupusi	13	Margaret Muriuki	Margaret Muriuki	Matanya-Resident
4	James Christian	Tumaren	17	Julius Mamaiyo	Musul	14	Stephen G. Maina	Stephen G. Maina	Kiamariga-Resident
5	Michael Dyer	Borana	18	James Rkida	Mupusi	15	Peter Mwangi	Peter Mwangi	Kiamariga-Resident
6	Sam Taylor	Borana	19	Morengo Francis	Il Polei	16	Peter Njau Nguji	Peter Njau Nguji	Kiamariga-Resident
7	Amyon Macleod	Borana	20	Richard Liso	Il Polei	17	Geoffrey Mahinda	Geoffrey Mahinda	Kiamariga-Resident
8	Richard Moller	Lewa Conservancy	21	Reuben Lesanja	Ass. Chief-Oldonyiro	18	Anne W. Kimani	Anne W. Kimani	Kiamariga-Resident
9	Jeremy Block	Ole Naishu	22	Ann Putunoi	Musul	19	David W. Wanjau	David W. Wanjau	Kiamariga-Resident
10	Chris Burt	Ole Naishu	23	Jonathan Nayue	Musul	20	Rebecca Maina	Rebecca Maina	Kiamariga-Resident
11	Bryn Lewelwyn	Oldonyo Farm	24	Samuel Tema	Ingwezi	21	Eunice Njoki	Eunice Njoki	Kiamariga-Resident
12	Sean Outram	Sosian	25	George Ilambe	Ilmarmusi	22	Patrick Muriuki	Patrick Muriuki	Kiamariga-Resident
13	Liz Rehoy	Segera	26	John Oletingoi	Oreteti	23	Elizabeth Ekitela	Elizabeth Ekitela	Kiamariga-Resident
14	Gabriel Njenga	Segera	27	Wilfred Sawe	Kuri Kuri	24	Stanley G. Kogi	Stanley G. Kogi	Kiamariga-Resident
15	Simon Anstey	Segera	28	Moitelet Parmashu	Kuri Kuri	25	Lekolele	Lekolele	Kiamariga-Resident
16	Kuki Gallman	Laikipia Nature Conservancy	29	Ollri Parmashu	Councilor-Mukogodo	26	Kariuki Wanjau	Kariuki Wanjau	Thome-Resident
17	Svega Gallman	Laikipia Nature Conservancy	30	Stephen Nyaeigis	Ingwezi	27	Kweli Kweli Leng'oloz	Kweli Kweli Leng'oloz	Thome-Resident
18	Margaret Kinnaird	Mpala Ranch	31	Simon Ngile	Loisukut WRUA	28	John Lebile	John Lebile	Thome-Resident
19	Claus Mortenson	Mugie	32	Kindaru Matunge	Kuri Kuri Group Ranch	29	Josphat Kipsinen	Josphat Kipsinen	Thome-Resident
20	Tom Mortenson	Mugie	33	Ntopes Lengel	Ilnewesi	30	Sylvester Munene	Sylvester Munene	Thome-Resident
21	Martin Evans	Oi Maisor	34	Tema Karamuchu	Ingwezi	31	Johnson Lekolele	Johnson Lekolele	Thome-Resident
22	Colin Francombe	Oi Malo	35	Yagoi Sakui	Sieku	32	Saitoti Londonokio	Saitoti Londonokio	Thome-Resident
23	Andrew Francombe	Oi Malo	36	Gabriel Karale	Ingwezi	33	Joseph Ishipay	Joseph Ishipay	Thome-Resident
24	Chulu Francombe	Oi Malo	37	Benson Kataka	Ingwezi	34	Charles Lodungokiok	Charles Lodungokiok	Thome-Resident
25	Richard Vigne	Oi Pejeta Conservancy	38	Jane Kachui	Ingwezi	35	Irene Wanjiku	Irene Wanjiku	Thome-Resident
26	Batian Craig	Oi Pejeta Conservancy	39	Maisutut Kiyaa	Ingwezi	36	Mugweru Muriuki	Mugweru Muriuki	Thome-Resident
27	Murray Grant	El Karama	40	James Legee	Makurian	37	Nkaroyia Lekolele	Nkaroyia Lekolele	Thome-Resident
28	Anne Powys	Suyian	41	Morias Kisid	Ingwezi	38	Shari Lekitasharan	Shari Lekitasharan	Thome-Resident
29	Ian Craig	Lewa Conservancy	42	Paul Kinyaga	Ass chief-Sanga	39	Limuria Anko	Limuria Anko	Thome-Resident
30	Jonathan Moss	Lewa Conservancy	43	Arnold Ithili	Mukogodo	40	Joseph Ayapar	Joseph Ayapar	Thome-Resident
Group Ranch/Community Conservancy Members									
1	Peter Nompoyo	Ilmotiok	44	David Masere	Ingwezi	41	Frederick Pelejong	Frederick Pelejong	Thome-Resident
2	Ilekel Karkuli	Tiamamut	45	John Moile	Lekuru/Chief Sieku	42	Moses Kariuki	Moses Kariuki	Thome-Resident
3	Paulina Mosiary	Tiamamut	46	Joseph Wahome	Matanya-Resident	43	Leakey Ojambo	Leakey Ojambo	Thome-Resident
4	Samuel Kipanui	Naibunga	Smallholder Farmers						
5	Isaak N. Meshame	Tiamamut	1	Joseph Wahome	Matanya-Resident	44	John E. Mundia	John E. Mundia	Thome-Resident
6	K. Loiramram	Narasha	2	Councillor Ndegwa Maina	Matanya-Resident	45	Shelmith Wanjiku	Shelmith Wanjiku	Thome-Resident
7	James Nhilogome	Nkiloriti	3	Johnston Mwangi	Matanya-Resident	46	Margaret Wangui	Margaret Wangui	Thome-Resident
8	Daniel A. Mayiani	Kijabe	4	Julius Waweru	Matanya-Resident	47			
9	John Lendeyon	Nkiloriti	5	Wilson Thuo Muriithi	Matanya-Resident				
10	John Ole Keshine	Oi Gaboli Lodge	6	Simon Wachira	Matanya-Resident				
11	George Oleumugie	Oi Gaboli Lodge	7	Simon Wachira Gitonga	Matanya-Resident				
12	Samuel Santa	Nkiloriti	8	Jane M. Japhet	Matanya-Resident				
13	Leiroiya Simon	Musul	9	Nteere Gitonga	Matanya-Resident				
		Narara West	10	John Njoroge	Matanya-Resident				

No.	Name	Organisation	No.	Name	Organisation	No.	Name	Organisation
Pastoralist Occupants of Abandoned Lands:								
1	Jeremiah	Councillor-Kirumun	44	Kitani Lenkirerek	Kirumun-resident	1	Aggrey Maumo	Senior Warden-KWS Nanyuki
2	Ltalesi Lematampash	Kirumun-resident	45	Tures Lemooli	Kirumun-resident	2	Peter N. Mbue	ADICC Laikipia
3	Lereiyen Lenkimas	Kirumun-resident	46	Chaptalia Lekiondo	Kirumun-resident	3	A Mohammed	DO1 Laikipia East
4	Lkasana Lennaalaimer	Kirumun-resident	47	Silipano Leere	Kirumun-resident	4	Alex Nzau	DDO Laikipia Central
5	Lbanyu Lengala	Kirumun-resident	48	Mayon Lengala	Kirumun-resident	5	Dr Faith Gakuru	DVO Laikipia Central
6	Lmayangu Lemasain	Kirumun-resident	49	Legen Lechoro	Kirumun-resident	6	Margaret Mwangi	DFO Laikipia East
7	Loiboni Lolkokoyei	Kirumun-resident	50	Larri Lesbia	Kirumun-resident	7	Kirimi Gatobu	D.D. Livestock Production
8	Meja Lepirkine	Kirumun-resident	51	Yatich Alexandra	CLO-Mugie Ranch	8	S.M. Waguru	D/DAO Laikipia East
9	Kateria Lenoogiro	Kirumun-resident	52	Chief Kamiti	Ass Chief-Loniek	9	A Wandera	Research Scientist-KWS
10	Lokuroi Lenduda	Kirumun-resident	53	Julius Alexi	Louniek-resident	10	Alex Omondi	Community Warden-KWS
11	Pipia Lepirkine	Kirumun-resident	54	Joseph Nawiakin	Louniek-resident	11	Dr Charles Musyoki	Head of Species-KWS
12	Mero Leirana	Kirumun-resident	55	Bishar Aden	Louniek-resident	12	Dr M. Kinyanjui	DVO Laikipia Central
13	Isaya Lekaldero	Kirumun-resident	56	Lokorocho Cheridid	Louniek-resident	13	Mwangi J. Nyaga	DOI-Munyaka Division
14	Lpilian Lenkoloomi	Kirumun-resident	57	Elijah Beba	Louniek-resident	14	Violet G. Najali	Nanyuki River Water Users
15	Lepirkine Nkabili	Kirumun-resident	58	Ngolekiesis Puida	Louniek-resident	15	Alex M. Nzau	DDO-Laikipia Central
16	Puleneb Loklolyei	Kirumun-resident	59	Domo Rionokou	Louniek-resident	16	Agnes Muthoni	Administrator-Laikipia County Council
17	Jacob Lekaldero	Kirumun-resident	60	Akai Muuro	Louniek-resident	17	Richard Nyambura	District Cooperative Officer
18	Amplio Lenchodor	Kirumun-resident	61	Lokolee Tongosteph	Louniek-resident	18	Samuel N. Ndiangui	District Accountant-Laikipia Central
19	Paranget Lenkolooni	Kirumun-resident	62	James Lokuriae	Louniek-resident	19	Martin K Mutuga	Fisheries-Laikipia Central
20	Pilita Lolkokoyei	Kirumun-resident	63	Frances Adough	Louniek-resident	20	J.J. Osoro	DCDO-Agriculture-Laikipia central
21	Mukaapa Lenkolooni	Kirumun-resident	64	Adoket Kapusia	Louniek-resident	21	Nyambura Leah	Laikipia Central Youth Office
22	Leor Lechooro	Kirumun-resident	65	Cheposabon Teta	Louniek-resident	22	Eliud K Too	Ministry of Agric, Lands and Env Officer
23	Tauro Lenduda	Kirumun-resident	66	Ashokon Adong	Louniek-resident	23	Ken Momanyi	District Intelligence Officer
24	Lesetun Lenkolooni	Kirumun-resident	67	Ekunoi Muru	Louniek-resident	24	Shem Otieno	District AP incharge Laikipia North
25	Kaato Lenkolooni	Kirumun-resident	68	Loreng Akori	Louniek-resident	25	Caleb O. Ongoma	District commissioner Laikipia North
26	Lekantua Rimpeti	Kirumun-resident	69	Lokengen Kubmoi	Louniek-resident	26	Paul G Kinyanjui	District Officer I Laikipia North
27	Panta Leiriro	Ass. Chief-Kirumun	70	Longor Aketee	Louniek-resident	27	Julius K.Githambo	District Officer II Laikipia North
28	Benson Leere	Kirumun-resident	71	Asinyan Longor	Louniek-resident	28	George Mibungui	District Agricultural Officer-Laikipia North
29	Lesewua Masenge	Kirumun-resident	72	Mary Kalebun	Louniek-resident	29	James N. Munga	District Internal Auditor-Laikipia North
30	Lekotip Lopuka	Kirumun-resident	73	Amorongobe Kirara	Louniek-resident	30	Halkano Hache	District Livestock Production officer-Laikipia West
31	Sauten Leere	Kirumun-resident	74	Lolomuri Morio	Louniek-resident	31	Anne Kaburu	Human Resource Management officer-Laikipia West
32	Charles Lematampach	Kirumun-resident	75	Boimoita Kibotoo	Louniek-resident	32	Hezron Kiurire	DROD-Laikipia West
33	Lchokuton Lengolooni	Kirumun-resident	76	Chepokusong Adokid	Louniek-resident	33	Anthony Githuku	DCO-Laikipia West
34	Letawon Lenongiro	Kirumun-resident	77	Merikusang Losire	Louniek-resident	34	Methucellah Mokua	DIA-Laikipia West
35	Kareta Lekodei	Kirumun-resident	78	Chepranyee Somoitai	Louniek-resident	35	Gate J M	DDEO-Laikipia West
36	Kanyenkie Lengala	Kirumun-resident	79	Kipton Akel	Louniek-resident	36	Emily N. Kioko	District Agricultural Officer-Laikipia West
37	Lmantiwan Lerotion	Kirumun-resident	80	Adoket Lochayo	Louniek-resident	37	Stephen Kimotho	D.Field OPS Assistant-Laikipia West
38	Timos Lenongiro	Kirumun-resident	81	Kimarmar Alim	Louniek-resident	38	Dr. Mwai P M	District Veterinary Officer-Laikipia West
39	Akim Lemtatmpach	Kirumun-resident	82	Robert Lochket	Louniek-resident	39	F. W Githuku	Districts Accounts-Laikipia West
40	Lesurion Lekochol	Kirumun-resident	83	L. Tuliamoi	Louniek-resident	40	M K Kipchumba	FDM-Laikipia West
41	Lpiriton Lemasian	Kirumun-resident	84	Jebarker Tongoshiep	Louniek-resident	41	G G Wachira	DIO-Laikipia West
42	Mamut Lenongiro	Kirumun-resident	85	Makal Runda	Louniek-resident	42	Eric Aduda	D/Warden KWS-Laikipia West
43	Mranko Lenongiro	Kirumun-resident				43	Elias Munyua	KIM-Laikipia West

Appendix 1: List of individuals interviewed and consulted to develop the situation Assessment between 2010 to 2011

No.	Name	Organisation	No.	Name	Organisation
Community Forest Association Representatives					
1	Virginia Wahome	Laikipia Wildlife Forum	1	Dr Paula Kahumba	Kenya Land Conservation Trust
2	Rosemary Ndirangu	Lariak CFA	2	Kathleen Fitzgerald	African Wildlife Foundation
3	Priscilla Watatua	Lariak CFA	3	David Hewett	African Wildlife Foundation
4	Veronica Kamunto	Lariak CFA	4	Dr Boniface Kiteme	CETRAD
5	Francis Nwaituri	Lariak CFA	5	Dr Laurence Frank	Living with Lions
6	Amos Kingori	Shamanyek CFA	6	Dr Rosie Woodroffe	Laikipia/Samburu Wild Dog Project
7	Simon Macharia	Shamanyek CFA	7	Dr Chris Thouless	Independent Consultant
8	David Kariuki	Shamanyek CFA	8	Dr Anthony King	Laikipia Wildlife Forum
9	David Ndishu	Uaso Narok CFA	9	Fiachra Kearney	Independent Consultant
10	Clement Gichohi	Uaso Narok CFA	10	Rex Sartain	British Army
11	Kezia Maina	Rumuruti CFA	11	Dino Martins	National Museums of Kenya
12	Onesmus Maina	Rumuruti CFA			
13	Pamela Mayaka	North Marmanet CFA			
14	Andrew Akli	North Marmanet CFA			
15	John Kinga	North Marmanet CFA			

Appendix 2: List of participants at the Laikipia Conservation Strategy Conference on March 22nd 2012

No.	Name	Organisation	No.	Name	Organisation
1	Johnson Sipitiek	ACC	41	Mike Watson	Lewa Wildlife Conservancy
2	Jonathan Rana	ACC	42	Delphine King	LWF
3	James Mathenge	Aggrs KWS MCA	43	Josephat Musyima	LWF
4	Ben Wandago	AWF Samburu	44	Anthony King	LWF BOD
5	Jeremiah Lemiruni	CCT & LCC	45	Vignia Wahome	LWF CLO
6	J K Kinyua	Chair FCC Central	46	Richard Nyabet	Makurian Group Ranch
7	Lydia Wandiah	Chairman(OI Morani)tourism&Environ	47	Paul Kere	MEMR
8	Joseph Karonji	Chairman-LCC East	48	Margaret Kinnaird	Mpala
9	Phillip Thimba	Chairperson HOPE	49	Isaac Kinyanjui	N/W Unit LWF
10	John Bosco	CLLR Laikipia CC	50	Beatrice Lempaira	Naibunga Conservancy Trust
11	Johnson Gichuhi	CLLR Laikipia County Council	51	Staline Kibet	National Museum of Kenya
12	Salim Edong	CLLR Laikipia West	52	Dominic Maringa	Ngarendare Trust
13	Peter Kirwa Saina	CLLR Laikipia West	53	Juliet King	NRT
14	Mbuti P M	CLLR Laikipia West	54	Mike Harrison	NRT
15	Daniel Kinyua	CLLR Laikipia West	55	Jirma Molu	NRT
16	Magdalena W.K	CLLR Laikipia West	56	KWKS Gauthawa	OI ARI Nyiro
17	Raphael Mumbiko	CLLR Laikipia West	57	John Weller	Oi Jogi
18	Daniel E Krimi	CLLR LCC	58	Jamie Gaymer	Oi Jogi
19	David Wanjohi	Conservancy Thome Group Ranch	59	Kimani Kuria	Oi Jogi Ltd
20	Dr. Enosh Osoro Nyakweba	D/Derictor WC Ministry Forestry & Wildlife	60	John Elias	Oi Lentille
21	J Mathenge	DC-Laikipia East	61	Richard Vigne	Oi Pejeta
22	Charles Nderitu	DDO-LCC	62	Martin Mulama	OPC
23	B W Kavu	Deputy Director KWS	63	John Ole Tingoi	Oretiti
24	Celine Achieng'	EAWLS	64	Catherine Wambani	PAD,KWS
25	Belinda Low	Grey Zebra Trust	65	Hewton Gitonga	Provincial Administrator
26	J.M Machomba	HOPE	66	Raul O Onyango	Provincial Administrator
27	Patrick karmushu	II Ngwesi Conservancy	67	CLLR John Elerman	Rumuruti Town Council
28	Saaya Tena	II Ngwesi Conservancy	68	CCL Peter Kirwa Saina	Rumuruti Town Council
29	Patric Leresi	II Ngwesi Conservancy	69	CCL Simon Kanyutu	Rumuruti Town Council
30	James M. Mwamodenyi	KFS	70	Patrick Omondi	SAD, KWS
31	Julius Kipng'etich	KWS	71	Mark Jenkins	Segera
32	Peter Murimi	KWS	72	Gabriel Njenga	Segera
33	David Koskey	LACOWAS	73	Tobias Ochieng'	SFG
34	Magdalene W Kariuki	Laikipia County Council	74	Festus Ihwagi	STE
35	Patrick Ngugi	Laikipia County Times	75	Anne Powys	Suyian Ranch
36	Sveva Gallman	Laikipia Nature Conservancy	76	Gilfrid Powys	Suyian Ranch
37	Mordecai Ogada	Laikipia Wildlife Forum	77	Aggrey Maumo	SW-KWS
38	Jacob Ekoi	LCC	78	David Wanjohi	Thome Community Conservancy

Appendix 3: Draft Laikipia Conservation Action Plan (Generated at the March 22nd Stakeholders' Conference)

OBJECTIVE	TARGET	ACTION
1. Secure and increase space for wildlife	1.1. By 2030 the Laikipia County Government provides incentives to landowners for the conservation of wildlife	1.1.1. Lobby the county government to harmonise tax regimes in order to create incentives for landowners to create space for wildlife 1.1.2. Partner with county government to value and support conservation of habitat & healthy ecosystems and assist the County Government to lobby for greater support from the national government to do this. 1.1.3. Carry out a study to identify the best institutional arrangements to secure space for wildlife according to land tenure regimes in the local area 1.1.4 Rebrand conservation to transform it from being perceived as a NGO dominated sector to a "productive wildlife sector". Strengthen this sector locally and nationally and support the County government to identify Laikipia as a wildlife producing County.
	1.2 By 2030 the owners of the 3,650 km2 of land that currently exists under conservation-compatible land use are committed to maintaining that land under conservation-compatible land use	1.2.1 Create transparency of benefit distribution from wildlife based activities within communities and to others. Strengthen economic activities on lands currently secured to keep it as is or expand. 1.2.2 Ensure security of land tenure 1.2.3. Strengthen the collaboration between community and private land owners (e.g joint resource management plans) in addition to existing and expand social development support. These activities need more support from LWF.
	1.3 By 2030 the owners of at least half the 3,196 km2 of land offering high potential wildlife habitat (where wildlife is currently absent or exists at low numbers) are committed to conservation-compatible land-use	1.3.1. Community lands Develop community land use plans (including resource use plans) 1.3.2. Abandoned lands: re-establish security of tenure
	1.4 By 2030, within the context of stable wildlife populations, more than half of Laikipia's residents view wildlife as an asset.	1.4.1. Carry out baseline survey to establish current perception 1.4.2. Education/awareness raising campaigns to reach the wider population in Laikipia about how wildlife contributes to the whole of the local economy 1.4.3. Mitigate human/wildlife conflict (SO5)
2. Strengthen security for wildlife in Laikipia County	2.1 By 2030 the problem of illegal killing of wildlife has been eliminated	2.1.1.Lobby government for elimination of illegal firearms in Laikipia 2.1.2. Establishment of managed KPR units in Laikipia County (6) 2.1.3. Develop a manual to train law enforcement personnel to successfully prosecute those involved in wildlife crimes 2.1.4. Lobby nationally and internationally against consumption of endangered species trophies?
	2.2.By 2030 populations of wildlife that are vulnerable to local extinction, through hunting pressure, recover by 10%	2.2.1. Carry out education and awareness campaigns- harmonise and target messages 2.2.2. Establish an umbrella for the development of conservancies in abandoned lands 2.2.3. Explore instruments for capturing economic benefits from wildlife protection eg REDD) 2.2.4. Lobby government to enable people to own and use wildlife

OBJECTIVE	TARGET	ACTION
3. Maintain and enhance habitats and connectivity to maximize species diversity, ecosystem services and human well being.	3.1 By 2030 the area under indigenous upland forest has increased by 50%	3.1.1. Strengthen CFAs to improve governance and capacity and establish new ones where they are not established. Capacity needs to be strengthened in relation to : <ul style="list-style-type: none"> • Understanding of the legislation • Enforcement of the law • Forest rehabilitation (planned grazing, tree planting, etc.) • Awareness on rehabilitation methods 3.1.2. Create a mechanism to make effective linkages between CFAs and KFS 3.1.3. Mobilise resources to support CFAs: <ul style="list-style-type: none"> • lobby for a county-level trust fund • investigate feasibility of county-wide carbon project Promote more equitable benefit-sharing agreements KFS/CFAs 3.1.4. Increase uptake of alternative energy sources identify champions within CFAs to show best-practice and promote them in the wider community
	3.1 By 2030 the area under indigenous upland forest has increased by 50%	3.2.1. Facilitate the establishment of land use plans in communal land areas specifying: use planning <ul style="list-style-type: none"> • Settlement • Grazing • Natural resource use like charcoal 3.2.2. Promote the consolidation of smallholdings to create economically and ecologically viable units for integrated livestock/wildlife management <ul style="list-style-type: none"> • Strengthen and promote Thome as a model 3.2.3. Active habitat management <ul style="list-style-type: none"> • Zones protected from browsing damage • Use tools to improve land health (grazing) • Control invasive species 3.2.4. Awareness of legislation and enforcement to control charcoal production <ul style="list-style-type: none"> • Reinvigorate Kenya Charcoal Working Group • Awareness amongst judiciary about I
	3.3 By 2030 the Ewaso Ngiro and its tributaries flow year round	3.3.1. Strengthen WRUAs and encourage employment of effective management 3.3.2. Scale-up efficient water use systems <ul style="list-style-type: none"> • Drip irrigation • Water storage and harvesting • Champions with working examples 3.3.3. Support the enforcement of existing legislation <ul style="list-style-type: none"> • Lobby NEMA to enforce EMCA • Pegging of riparian reserves • Prevent illegal boreholes 3.3.4. Lobby for a county-level legislation promoting water storage 3.3.5. Actively manage and rehabilitate riparian land to ensure vegetation cover 3.3.6. Supporting access to funds to implement sub-catchment management plans <ul style="list-style-type: none"> • Common intake 3.3.7. Strengthen linkages between WRMA and Water services board
	3.4 By 2030 management plans are implemented for each of Laikipia's wetlands	3.4.1. Wetlands and springs recognised as a national asset and legislation developed to support their management <ul style="list-style-type: none"> • Re-establish and enforce boundaries

Appendix 3: Draft Laikipia Conservation Action Plan (Generated at the March 22nd Stakeholders' Conference)

OBJECTIVE	TARGET	ACTION
	3.5 By 2030 wildlife is able to move unhindered within Laikipia and between Laikipia and the adjacent ecosystems	3.5.1. Fences – allow free movement of wildlife between ecologically connected areas 3.5.2. Identify important corridors and promote wildlife-tolerant activities in these areas
4. Promote effective collaboration among stakeholders to enable effective wildlife conservation in Laikipia County	4.1 By 2017 the County Government has in place a clear integrated land use plan that recognises and protects the needs of wildlife	4.1.1. Understand current land use and potential areas of alternative use, consolidate this information in maps 4.1.2. Support the creation of dialogue amongst different sectors of government through the establishment of a task force 4.1.3. Facilitate the creation of an integrated land use plan
	4.2 By 2030 membership of the LWF increases tenfold from 2012 levels and is representative of the people of Laikipia	4.2.1. Increase awareness creation through a variety of media 4.2.2. Open an office in Laikipia West 4.2.3. Explore new membership structure potential
	4.3 By 2017 a framework is established to foster demand driven research in Laikipia County	4.3.1. Identify all previous research publications and establish and annotated bibliography and a resource centre 4.3.2. Create a central database for Laikipia and establish a link with members 4.3.3. Create a digital forum/blog for sharing information
	4.4 By 2030 wildlife management decisions taken in Laikipia, recognise uncertainty, and are informed by the results of applied monitoring and research	4.4.1 Support and encourage sharing of information between researchers, policy makers, land owners, KWS- creation of a network 4.4.2. Establish natural resources extension services to disseminate resource findings 4.4.3. Refine and implement long term monitoring protocols to monitor changes in the environment
	4.5 By 2030 conservation organisations operating in Laikipia collaborate in Laikipia effectively	4.5.1. Initiate a Laikipia annual research day 4.5.2. Initiate a Laikipia resource information day
5. Minimise Costs of Living with Wildlife	5.1 By 2030 responsibility for managing the hard boundaries that separate land committed to conservation from land where wildlife is not tolerated is clearly defined and designated	5.1.1. Create a centralised body to oversee location, design, management of hard boundaries- Central fencing committee for example encompassing technical, ecological, socio political expertise 5.1.2. Support the creation of government funding streams 5.1.3. Creation of community institutions in wildlife intolerant areas of the boundaries- role would be education, maintenance responsibility, entry points, development of income generating activities 5.1.4. Lobby/support the enforcement of penalties for fence breakage (vandalism), working with and sensitise judiciary, land-owners, KWS on law enforcement

OBJECTIVE	TARGET	PROCEDURES
	5.2 By 2030 problem animal control (PAC) is timely and effective	5.2.1. Establishment and training of community scouts 5.2.2. Determine and establish communication protocols for effective reporting of conflict incidents 5.2.3. Identify local actors/leaders as focal point 5.2.4. Lobby (carry on) for increase in wildlife crime penalties 5.2.5. Sensitise people on conflict prevention
	5.3 By 2030, with the context of a stable elephant population, crop-raiding by elephants in Laikipia reduced by 90% from 2012 levels.	5.3.1. Lobby for increased personnel and equipment on the ground: increase in KWS outpost (already initiated) and PAC capacity 5.3.2. Identify and implement systems to improve KWS and community collaboration for rapid response 5.3.3. Build people's capacity to deter elephants (use research, education, community based deterrents) 5.3.4. Increase number of community scouts 5.3.5. Develop reliable channels for communication 5.3.6. Provide technical support for community ring fences around discreet farming areas on the basis of recommendations by the Laikipia Fence Committee (see target 5.1) 5.3.7. Increase elephant habitat by supporting CFAs, development of new conservation model, processes for productive use of abandoned lands
	5.4 By 2030, within the context of stable predator numbers, depredation has been reduced by 90% from 2012 levels	5.4.1. Lobby for mechanisms to allow areas where predators breed to control predator numbers 5.4.2. Community: promote and facilitate the use of predator proof bomas with advice from Laikipia Predator Project and OI Pejeta Conservancy 5.4.3. Increase wildlife tolerant areas and wildlife numbers so that predators have enough to eat outside livestock areas; enable productive use of abandoned lands, stimulate private/community partnerships for increased tourism, provide incentives for predator conservation, ensure adequate benefit sharing, create income generating activities and improve land use on settled areas (e.g. planned grazing) 5.4.4. Improve herding practices on community lands (more herders, dogs, soil conservation and land use)

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