KENYA WILDLIFE SERVICE

CONSERVATION & MANAGEMENT STRATEGY for

# GREVY'S ZEBRA

*(Equus grevyi)* in KENYA (2012-2016)

2nd Edition


# CONSERVATION and MANAGEMENT STRATEGY for GREVY'S ZEBRA (*Equus grevyi*) in KENYA (2012-2016)

2nd Edition, 2012 Produced at the Grevy's Zebra National Stakeholders Workshop held from 24th to 26th April 2012 at the Sportsman's Arms Hotel, Nanyuki, Kenya

Compiled by: The National Grevy's Zebra Technical Committee

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# Acknowledgments

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We appreciate the support of the following organisations:

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Finally, George Anyona, Antony Wandera and Daniel Letoiye are thanked for compiling this conservation strategy.

# Abbreviations and Acronyms

| | |
|---|---|
| **AWF** | African Wildlife Foundation |
| **CFA** | Community Forest Association |
| **CITES** | Convention on International Trade in Endangered Species of Wild Fauna and Flora |
| **CWS** | Community Wildlife Service |
| **DRC** | Disease Response Committee |
| **DZF** | Denver Zoological Foundation |
| **EEP** | European Endangered Species Program |
| **EWCA** | Ethiopian Wildlife Conservation Authority |
| **GSM** | Global System for Mobile Communication |
| **GZ** | Grevy's Zebra |
| **GZLO** | Grevy's Zebra Liaison Officer |
| **GZT** | Grevy's Zebra Trust |
| **GZTC** | Grevy's Zebra Technical Committee |
| **IUCN** | International Union for Conservation of Nature |
| **KFS** | Kenya Forest Service |
| **KWS** | Kenya Wildlife Service |
| **LAPSSET** | Lamu Port and Lamu Southern Sudan-Ethiopia Transport Corridor |
| **LMD** | Livestock Management Department |
| **LWC** | Lewa Wildlife Conservancy |
| **LWF** | Laikipia Wildlife Forum |
| **MW** | Marwell Wildlife |
| **NGO** | Non-Governmental Organization |
| **NGZSC** | National Grevy's Zebra Steering Committee |
| **NRT** | Northern Rangelands Trust |
| **OPC** | Ol Pejeta Conservancy |
| **SMART** | Specific, Measurable, Achievable, Realistic and Time Based |
| **SO** | Strategic Objective |
| **TOR** | Terms of Reference |
| **WRMA** | Water Resources Management Authority |
| **WRUA** | Water Resources Users Association |

Foreword by the

# Chairman of the Board of Trustees of KWS

Kenya Wildlife Service (KWS) is a state corporation established by an act of Parliament and has the legal mandate to conserve and manage wildlife in the country and enforce related laws and regulations. The functions of KWS are clearly spelled out in The Wildlife (Conservation and Management) Act CAP 376 and The Wildlife (Conservation and Management) (Amendment) Act No. 16 of 1989. Since its inception in 1990, KWS has achieved much in curbing poaching, enlisting support in conservation, and establishing infrastructure and human capacity development. The success has been made possible through support from the Government of Kenya, international and local donors, and development partners.

The conservation and management of wild animal and plant species is at the core of the KWS mandate. Kenya hosts numerous wildlife species, some of which are abundant whereas others are threatened by a number of natural and anthropogenic factors. From fossil evidence and knowledge of environmental conditions that existed during the long history of wildlife, it is evident that there were far greater numbers of species and individuals in past ages than in the present time. While extinction is a natural phenomenon which occurs gradually over millennia, human activities have greatly accelerated the process. The main challenge is how to minimize human induced threats that may shorten life expectancy and hasten species extinction. To carry out our mandate effectively we need to know the status of rare and endangered species in order to formulate scientifically sound strategies to protect and build up existing populations where they persist.

Kenya is formulating a new wildlife bill listing critically endangered, threatened, vulnerable and protected species. KWS is in the process of developing and implementing recovery plans for the conservation and management of all the listed species with priority to the rare, threatened and endangered species, and incorporate in each recovery plan descriptions of site-specific management actions as may be necessary to achieve desired goals for the conservation and long term survival of the species. This revised national conservation strategy for Grevy's zebra was done to guide efforts to conserve this endangered species. KWS is committed to the realization of this strategy and calls upon donors, partners and stakeholders to support the implementation of this national conservation strategy.

Hon. David Mwiraria, EGH
CHAIRMAN
KENYA WILDLIFE SERVICE
BOARD OF TRUSTEES

The Kenya Wildlife Service (KWS) conserves and manages Kenya's wildlife for the Kenyan people and the world. It is a state corporation established by an Act of Parliament Cap 376 with the mandate to conserve and manage wildlife in Kenya, and to enforce related laws and regulations. Kenya Wildlife Service (KWS) identified the need for national species conservation strategies to ensure special attention is focused on threatened species. Consequently, KWS established the Department of Species Conservation and Management to promote threatened species conservation planning to ensure their future survival

We would like to inform you that Kenya Wildlife Service (KWS) takes all necessary measures to ensure that Kenya's wildlife and habitats are properly managed and secured. The number and populations size of Grevy's zebra have reduced drastically and the species' natural range has undergone one of the most dramatic constriction of any animal species in Africa. Today the species persists only in Kenya and Ethiopia, with over 90% of the global population found in Kenya.

The main factors responsible for the decline of the species population are loss of range, hunting, competition with domestic livestock for critical resources, loss of access to critical resources, disease and predation. The persistent decline in the species numbers and range has been of major concern to stakeholders in Kenya. Stakeholders recognized that the conservation of Grevy's zebra and its habitats will require commitment and coordinated efforts among all concerned parties to ensure the future survival of this species across its native range.

The preparation and production of this revised conservation strategy 2012-2016 has truly been a team effort. We are indeed grateful to entire team which provided tremendous support, active participation and contributions in all the processes involved in developing this strategy. In developing the strategy, we have taken stock of our strengths, weaknesses, opportunities and threats and have fully appreciated the underlying challenges facing us. We have also taken cognizance of the stakeholders and thus embraced the spirit of inclusiveness and consultations in developing this document.

Kenya Wildlife Service and its staff make a commitment to provide the Kenyan citizenry with the highest quality service. KWS welcomes any form of support that would facilitate smooth implementation of this strategy and our mandates. We shall on our part continuously review our operational processes to ensure efficiency, transparency and accountability in our undertakings. We seek your feedback to help us improve on our service delivery.

William Kiprono
DIRECTOR
KENYA WILDLIFE SERVICE

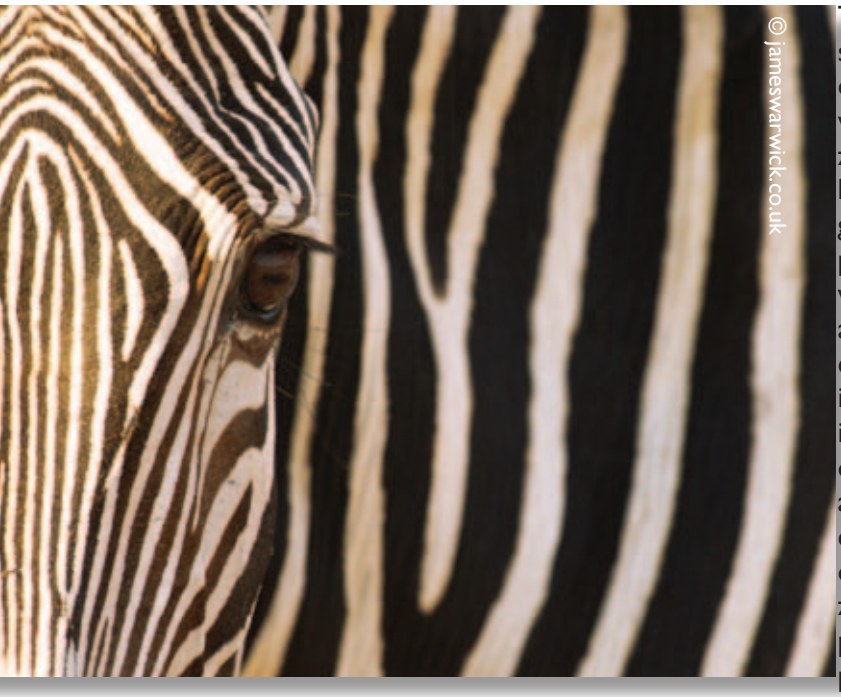
# Executive Summary

Grevy's zebra have undergone one of the most substantial reductions of range of any African mammal. Historically the species was found in Kenya, Ethiopia, Eritrea, Djibouti and Somalia with a reported sighting in Sudan. Currently, the species is found in only two of the former range states: Kenya and Ethiopia. Numbers of Grevy's zebra have declined from an estimate of 15,000 in the late 1970s to the present-day estimate of 2,800 animals (Annex 2) representing an 81% decline in global numbers. Kenya holds about 90% of the global population in the wild.

The decline in Grevy's zebra is primarily the result of killing for meat, medicinal purposes or sometimes at random; loss of access to critical resources due to competition with domestic livestock; and an increasing scarcity of these resources as a result of over exploitation. In addition, there has been a significant, very recent decline in the species in northern Kenya due to disease and drought.

Over the last 10 years in particular, a considerable amount of money and resources have been expended in Kenya aimed at saving the Grevy's zebra from extinction. As a result, the declining trend has reversed and numbers are slowly increasing. As at the end of 2011, Kenya had approximately 2,546 Grevy's zebras, while Ethiopia had a total of 281 Grevy's zebra (Annex 2). However, habitat degradation and loss continues to be the major threat to Grevy's zebra conservation.

At expiry of the 2007-2011 Strategic Plan, the nine strategic objectives had been partially achieved. Owing to the pending activities which were not achieved, the emerging challenges and interests in the conservation of Grevy's zebra necessitated the review of the Conservation and Management Strategy of Grevy's zebra. This review merged the nine broad objectives to five.




This strategy contains a revised vision, goal and strategic objectives to drive the conservation of Grevy's zebra for the next five years. The vision is to have viable populations of Grevy's zebra in their natural habitat, functioning in healthy ecosystems and valued locally and globally; the goal is to ensure Grevy's zebra populations increase within their natural range whilst fostering ecological, socio-cultural and economic sustainability. An effective coordination framework will be strengthened in order to facilitate decision making and identify responsibility on the management of Grevy's zebra to achieve the stated goals and objectives. This will be done with due consideration of stakeholders' interests in order to secure and effectively manage Grevy's zebra habitat and to increase Grevy's zebra populations through effective management and protection.

This reviewed strategy has broadened the scope to embrace other sub populations within the country as well as transboundary considerations between Kenya and Ethiopia.

Consequently the strategy will lay emphasis on: coordination of the implementation of the conservation and management strategy, enhancement of stakeholder partnerships in Grevy's zebra conservation, enhancement of management of Grevy's zebra habitat, management of Grevy's zebra health, and enhancement of transboundary Grevy's zebra conservation.

# Introduction

## Conservation Status

Grevy's zebra *(Equus grevyi)* was listed as Endangered A 2ac, C 2a (i) by the IUCN/SSC Equid Specialist Group (IUCN, 2003). This status is currently undergoing revision (Moehlman *et al*, 2008). Grevy's zebra is also listed on Appendix I of the Convention on International Trade of Endangered Species (CITES) which offers them, the highest protection against trade. They are legally protected in Ethiopia and since 1977 have been protected by a hunting ban in Kenya. The Kenyan government is currently revising their conservation status from 'Game Animal' under the first schedule, Part II in CAP 376 of the Wildlife (Conservation Management) Act to 'Protected Animal'.

Grevy's zebra suffered a catastrophic decline across its natural ranges in the 1970s and 1980s, both in numbers and extent of its range. Numbers plummeted from an estimated 15,000 in the 1970s to fewer than 2,500 by the 1990s. The decline in the Grevy's zebra *(Equus grevyi)* in Eastern Africa where its natural range occurred was mainly due to poaching, habitat degradation and habitat loss.

## Numbers and Distribution of Grevy's Zebra in Kenya and Ethiopia

Since early records of their distribution, Grevy's zebra have undergone one of the most substantial reductions of range of any African mammal (Annex 1, Kingdon, 1997). Historically, Grevy's zebra were found more widely across the horn of Africa including Djibouti, Eritrea, Somalia, Ethiopia and Kenya with a reported sighting in Sudan. Today they persist only in Kenya and Ethiopia.

Following the National Stakeholders workshop to review the Conservation and Management Strategy for Grevy's Zebra *(Equus grevyi)* in Kenya held in April 2012, the distribution map was updated. Two sub populations of introduced Grevy's zebra are present in Oserian and Tsavo (Figure 2).

> "This reviewed strategy has broadened the scope to embrace other sub populations within the country as well as transboundary considerations between Kenya and Ethiopia."

In the last 10 years in particular, a considerable amount of money and resources have been expended in Kenya aimed at saving the Grevy's zebra from extinction. As a result, the declining trend has reversed and numbers are slowly increasing. As at the end of 2011 Kenya had approximately 2546 Grevy's zebra while Ethiopia had a total of 281 Grevy's zebra (Annex 2). However, habitat degradation and loss continues to be the major threat to Grevy's zebra conservation.

There have also been significant declines in the numbers of Grevy's zebra (Figure 1, Nelson, 2003; Rowen and Ginsberg, 1992; Williams, 2002). Towards the end of the 1970s, the global population of Grevy's zebra was estimated to be approximately 15,000 animals (Grunblatt *et al*., 1996; Grunblatt *et al*., 1989; Klingel, 1980); the present-day estimate is 3,318 animals (proceedings of National Grevy's zebra stakeholders workshop, 2012), that include 491 individuals in captivity in Europe (EEP, 2011) representing an 78% decline in global numbers over the past four decades.

Estimates for Grevy's zebra populations in Ethiopia suggest a minimum of an 85% decline throughout the country with an estimated 1,900 animals in 1980 (Klingel, 1980); 577 animals in 1995 (Thouless, 1995); 110 animals in 2003 (Williams *et al.*, 2003) to 281 animals in 2012 (Fanuel Kabede, pers. comm. 2012).

In Kenya the rate of decline has been slower than that of Ethiopia. The 1977 estimate for Grevy's zebra was 13,718 (Dirschl and Wetmore, 1978); in 1988, the estimate was 4,278 (Grunblatt *et al.*, 1989); in 2000, the estimate was 2,571 animals (Nelson, 2003; Nelson and Williams, 2003); "Guess estimate" numbers of Grevy's zebra in Kenya taken from the 2004 Grevy's zebra workshop (Williams and Low, 2004) ranged between 1,600 and 2,000 animals. In the 2007 National Grevy's Zebra Conservation Strategy Workshop (Mwasi and Mwangi, 2007) these figures were updated by stakeholders with the estimated population ranging between 1,838 and 2,319 animals. A systematic and coordinated aerial census in 2008 yielded 2,407 individuals of Grevy's zebras in Laikipia-Samburu-Isiolo-Marsabit complex.

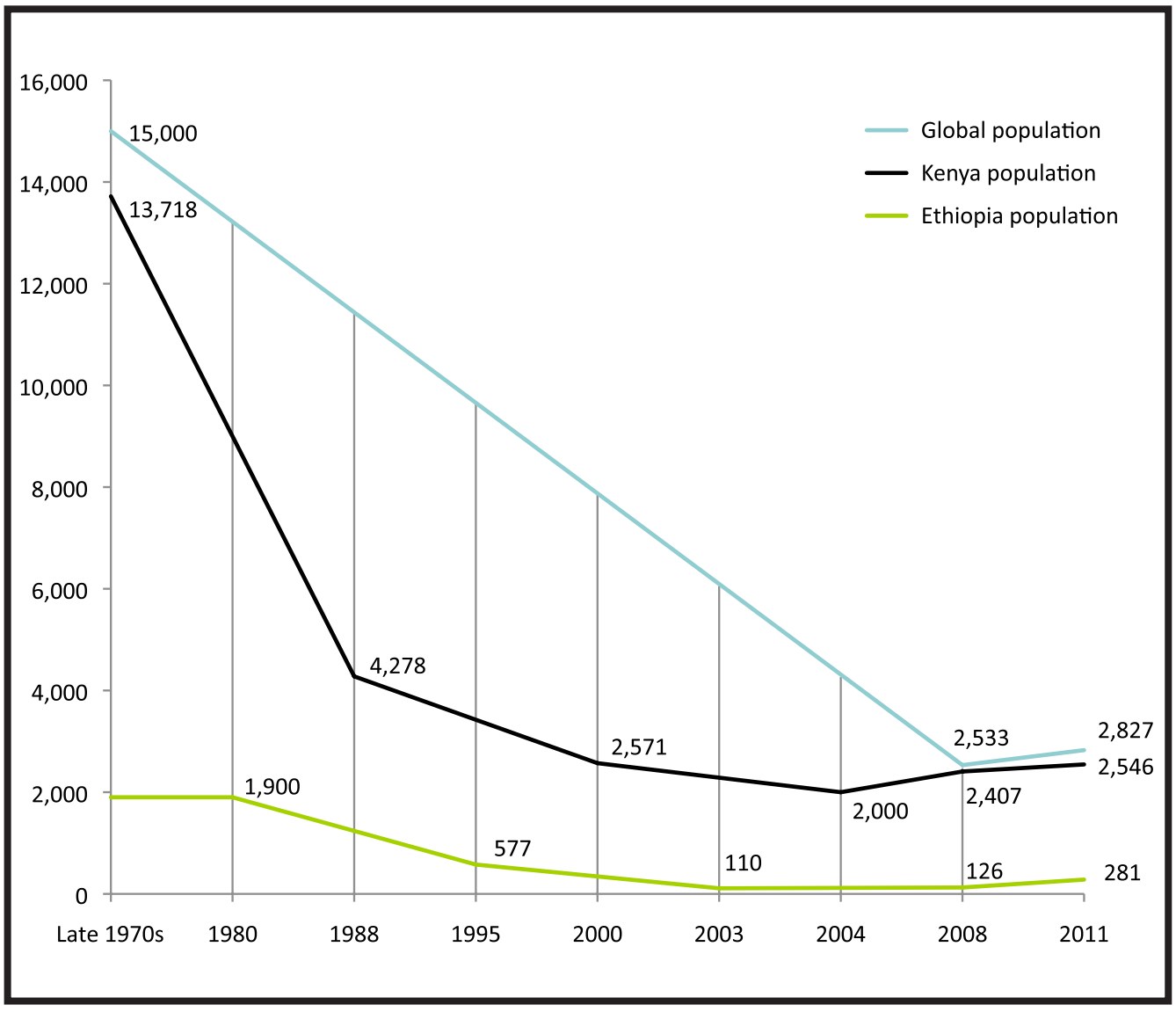



**Figure 1: Trend in Grevy's zebra numbers in the wild from the late 1970s to 2011**

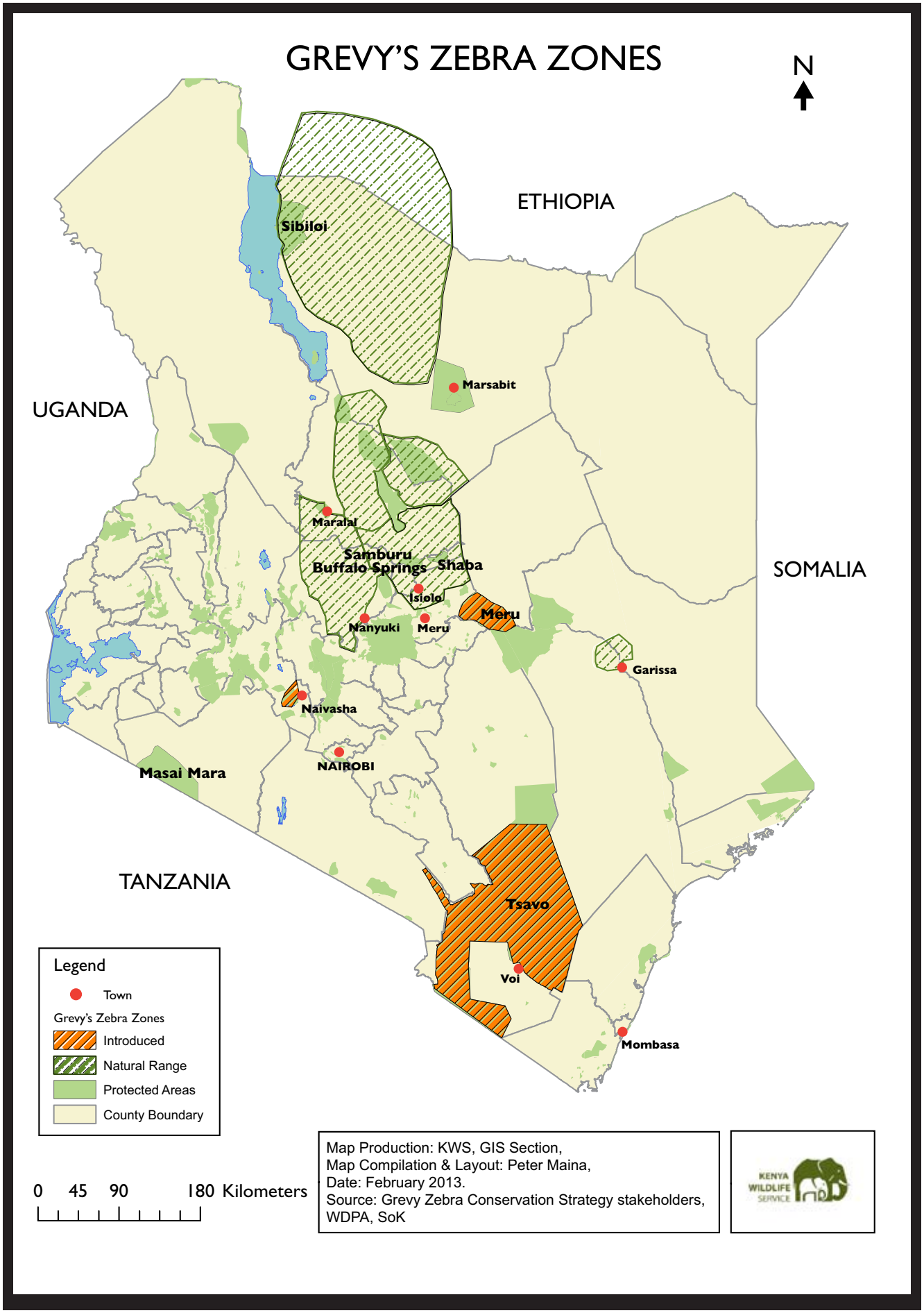



**Figure 2: Grevy's zebra conservation zones in Kenya**

# Threats

The decline in Grevy's zebra is primarily the result of habitat degradation and loss, competition for resources with livestock, reduction of water sources and restricted access to water, hunting, predation, habitat conversion and small population size, disease and hybridization (Table1).

**Table 1: Threats to Grevy's zebra conservation**

Table below shows summary of ranked threats to Grevy's zebra in Kenya adapted from those listed by Williams (2002) and incorporating more recently identified threats (Njonjo, 2004; Williams and Low, 2004; Manyibe *et al*, 2006; Muoria *et al*., 2007; proceedings of Grevy's zebra National Stakeholders workshop, 2012).

| Rank | Threat | Cause | Threatened population(s) / Remarks |
|---|---|---|---|
| 1. | Habitat degradation and loss | • Heavy, sustained grazing by relatively high densities of domestic livestock resulting in changes to the vegetation communities and erosion<br>• Human activities such as upstream abstraction of water<br>• Increasing climatic variability such as frequency and duration of drought | • Habitat degradation is by far the most serious threat to Grevy's zebra across most of its range<br>• All Grevy's zebra in their historic range of Grevy's zebra<br>• Habitat loss has resulted in a large reduction in the range of Grevy's zebra |
| 2. | Competition for resources with livestock, reduction of water sources and restricted access to water | • Competition with relatively high densities of domestic livestock for limited resources, particularly in the dry season<br>• Causes of reduction of water include upstream abstraction, river flow, human occupation, and human settlement near water, siltation, and falling water table<br>• Unsustainable extraction of perennial river water for irrigation in highland areas and exclusion of wildlife from water sources by people<br>• Competition caused by displacement, encroachment and harassment by herders<br>• Overall, reduction of water sources is an issue of access more than it is of availability or amount | • Competition for resources with livestock threatens Grevy's zebra population, are sympatric with pastoral people and their livestock of their range. Potential completion may result in low fowl survival<br>• Reduction of water sources threatens all populations, but particularly the Grevy's zebra dependent on water from the Ewaso Ng'iro river basin. This affects majority of the population in Kenya, including the Southern Samburu<br>• Restricted access to water threatens the small and potentially isolated populations in the more arid parts of their range, including the Laisamis, Karole, Sibiloi, and El-Barta populations |

| Rank | Threat | Cause | Threatened population(s) / Remarks |
|---|---|---|---|
| 3. | Hunting | • Historically, the killing of Grevy's zebra for skins; currently killing for meat and utilization of Grevy's zebra for medicinal and cultural purposes | • Historically responsible for the large decline in Grevy's zebra numbers. At present, killing of animals for meat and medicinal purposes. This is one of the threats in areas like El-Barta, North Horr, South Horr and non target shooting in Tsavo |
| 4. | Disease | • Unvaccinated livestock making both domestic stock and wildlife susceptible to the disease especially for species occurring in low numbers especially anthrax and babesiosis<br>• Frequency of emerging /re-emerging diseases is on the increase due to increasing interaction of wildlife livestock and humans and climatic change | • Those populations in areas where there is a diffuse wildlife livestock interface such as Wamba, Laisamis, Milgis and El-Barta |
| 5. | Hybridisation | • Sympatric hybridization between Grevy's and plains zebra on the edge of Grevy's zebra range<br>• There are isolated cases of donkey and Grevy's zebra (Nairobi Safari Walk) and a horse and Grevy's zebra (Mt. Kenya Orphanage) | • Hybridization has the potential to be a threat, has occurred both at Ol Pejeta, and Tsavo. The extent to which this is a threat needs further investigation in both populations |
| 6. | Predation | • Top-heavy predation of Grevy's zebra specifically by lions and hyenas impacting on Grevy's zebra population growth | • Indirect evidence suggest this happening at Lewa Wildlife Conservancy and Oserian Wildlife Sanctuary |
| 7. | Habitat conversion and small population size | • Vision 2030 programmes like Isiolo Resort City and The Lamu Port and Lamu Southern Sudan-Ethiopia Transport Corridor (LAPSSET) | • Is a potential threat in Northern Kenya |

# Grevy's Zebra Conservation Efforts in Kenya

Over the last fifteen years, conservation efforts centred on Grevy's zebra have significantly increased. It has become a focal species for many programmes, not just for wildlife conservation but also for community development because the fates of both Grevy's zebra and human livelihoods are inextricably linked to the fragile semi-arid and arid ecosystem of northern Kenya. Community led conservation in this context has been particularly successful through the establishment and support of a growing number of community conservancies.

These communities have a lot of natural wealth and therefore conservation programmes recognise the value of assisting communities in increasing their capacity to take advantage of the opportunities presented through the sustainable management of their natural resources and in diversifying their economic base through wildlife-based income such as tourism and game bird hunting. In addition, alternative enterprises such as aloe harvesting are currently being explored.

"Community led conservation in this context has been particularly successful through the establishment and support of a growing number of community conservancies."

Focus has also been put on improving infrastructure for communities. This is important in the context of Grevy's zebra conservation particularly with respect to the development of new water sources where the distribution and management of water for domestic stock and wildlife has significant implications for Grevy's zebra. It needs to be done with great care as the presence of new water sources may allow the spread of livestock into areas that formerly were only accessible to Grevy's zebra. In addition, increasing road and air access to the more remote areas of Grevy's zebra range will enhance the effectiveness of ongoing conservation programmes.

Much of the conservation work to date has targeted the populations within Samburu. The review of the expired Conservation and Management Strategy for Grevy's zebra in Kenya (2007-2011) at Nanyuki in April 2012 broadened this attention to other areas where Grevy's zebra are found in Kenya and Ethiopia. Grevy's zebra range extends beyond the geographical extent of the Samburu-Laikipia landscape therefore in addition to the priorities identified by stakeholders, one of the outputs of this strategy will be the harmonization and strengthening of transboundary Grevy's zebra conservation activities involving both Kenya and Ethiopia by managing Grevy's zebra populations through an effective transboundary conservation frame work.

The coordination framework will be strengthened in order to facilitate decision making and identify responsibilities. To achieve the objectives while taking into account diverse stakeholder interests the strategy will strive to secure and effectively manage Grevy's zebra habitat, to increase the Grevy's zebra population through effective management and protection.

The aerial survey report indicated that 60% of the Grevy's zebra sightings made during the survey was on community-owned lands of Northern Kenya demonstrating that pastoralist communities in northern Kenya are critical to the survival of the species (Low *et al*, 2009). In Laikipia, Grevy's zebra were found mainly within private ranches. Both the Lewa Wildlife Conservancy and Ol Jogi remain important refuges for the species (Low *et al*, 2009). Samburu, Buffalo Springs and Shaba National Reserves are particularly important as dry season refuges for Grevy's zebra in the Samburu landscape (Ginsberg, 1988; Williams, 1998). The County Council of Samburu is responsible for the management of Samburu National Reserve while the County Council of Isiolo manages the other two reserves. Other Grevy's zebra populations are found in lands which County Councils hold in trust for local communities. Some small isolated populations were also reported in other parts of Kenya like Tsavo, Oserian Wildlife Sanctuary in Naivasha, Garissa and Meru National Park (National Stakeholders Review Workshop, April 2012). Only a negligible proportion of Grevy's zebra are found in National Parks, which are managed directly by KWS.

# Approach to the Revised Strategy

## Formulation Process of this Strategic Plan and Evaluation of Previous Strategic Plan

The development of this reviewed Conservation Strategy started with the Grevy's Zebra Technical Committee evaluating the expired 2007-2011 Conservation Strategy, and then internally Kenya Wildlife Service did also evaluate the 2007-2011 Conservation strategy, led by the Species Conservation and Management Department of KWS in February 2012. The review produced an evaluation document (summarized in Annex 3). The evaluation noted that there was good progress in the implementation of 2007-2011 strategy and also highlighted areas that needed more attention.

During the implementation period of the 2007 – 2011 strategic plan, the following milestones were achieved:

- A National Grevy's Zebra Liaison Office was established to coordinate implementation of the strategy. This led to improvement in coordination of action by stakeholders and information exchange.
- The Executive, Management, Technical and Site committees were constituted.
- Community engagement was enhanced and conservation awareness was raised.
- Security and anti-poaching operations were enhanced by KWS in collaboration with the community and other stakeholders.
- The capacity of local people to conserve and manage Grevy's zebra conservation programs was up-scaled through trainings that included higher education.
- Habitat restoration work was done especially in Westgate Community Conservancy.
- Supplementary feeding and water management were done during the drought years.
- Grevy's zebra sub populations impacted by predation were documented.
- Hybridization of Grevy's zebra and common zebra was monitored and documented.
- An individual photo-identification database was developed, implemented and maintained.
- Community based monitoring of Grevy's zebra population dynamics by scouts was continued.
- A systematic and coordinated aerial census of Grevy's zebra in Laikipia, Samburu and Marsabit was undertaken in 2008.
- A depository for biological samples was established at KWS Veterinary Complex.
- A field based laboratory facility was established for the collection and storage of biological samples.
- Community scouts were trained in early detection of disease symptoms in Grevy's zebra.
- A Grevy's Zebra Disease Response Committee was constituted and operationalised.
- A Grevy's zebra mortality database was established.

Furthermore, a number of lessons were learned during the implementation of the 2007 – 2011 strategy that informed the review process. These included collapsing some strategic objectives to improve the efficiency of the current strategy implementation. It was also noted that all the anticipated site committees were inactive during the implementation period. The mobility of the National Liaison Officer was constrained by the lack of transport.

# Structure of this Strategic Plan

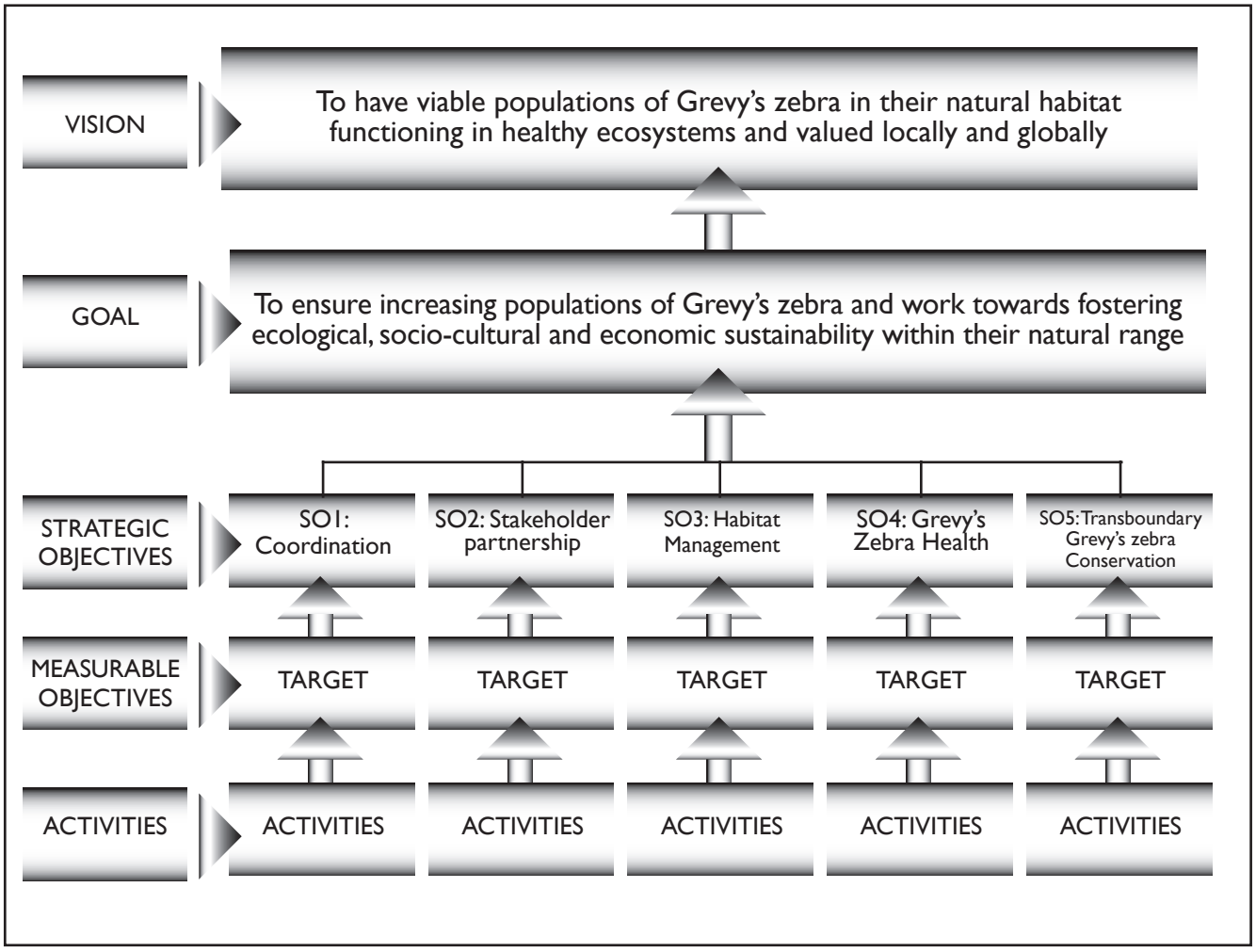



**Figure 3: Structure of the 2012-2016 Grevy's Zebra Conservation and Management Strategy**

This Strategic Plan has a 5-year life span with annual review of its implementation.

The Strategic Plan identifies five **Strategic Objectives (SO)**:

SO 1: Coordination of the implementation of the conservation and management strategy

SO 2: Enhancement of stakeholder partnerships in Grevy's zebra conservation

SO 3: Enhancement of Grevy's zebra conservation and habitat management

SO 4: Establish a programme for monitoring and managing Grevy's zebra population health

SO 5: Enhancement of transboundary Grevy's zebra conservation

## Vision

To have viable populations of Grevy's zebra in their natural habitat, functioning in healthy ecosystems and valued locally and globally.

## Goal

To ensure increasing populations of Grevy's zebra and work towards fostering ecological, socio-cultural and economic sustainability within their natural range.

# Strategic Objectives

## SO - 1: Coordination of the Implementation of the Conservation and Management Strategy

An effective coordination framework will be strengthened in order to facilitate decision making and identify responsibility on the conservation and management of Grevy's zebra to achieve the stated goals and objectives, with due consideration of the interests of all the stakeholders

### Rationale

There are multiple stakeholders involved in Grevy's zebra conservation activities across the country. A coordination framework is critical in ensuring that maximum impact is achieved in this endeavour. This also ensures that duplication of effort is avoided, resource use optimised and synergies between different conservation efforts are promoted. Coordination also enables creation of a central information depository for Grevy's zebra conservation, and ensures that priority actions remain objective focused. Finally coordination ensures that implementation complies with legislative requirements, policy prescriptions and international conservation standards.

Figure 4 below indicates the implementation framework for this strategy.

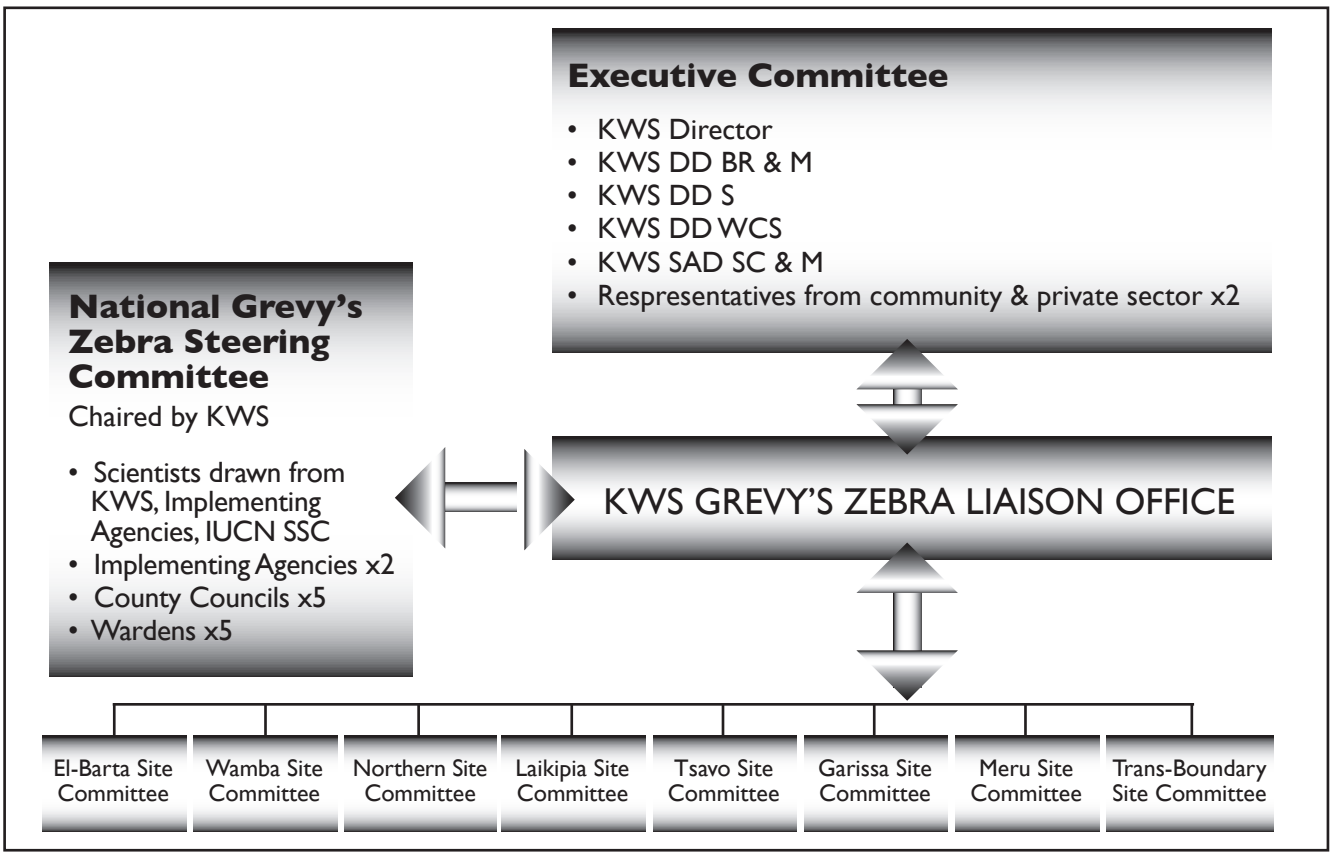



**Figure 4: Coordination framework for the strategic plan implementation**

| Strategic Objective | Action | Indicator | Target Area/ Grevy's zebra population | Time frame | Responsibility |
|---|---|---|---|---|---|
| SO1.1 Communication | 1.1.1 Develop Grevy's zebra newsletter | Grevy's zebra newsletter | New findings & information sharing | Annually | NGZSC |
| | 1.1.2 Synthesize & disseminate all Research findings on Grevy's zebra Conservation | Summaries on research findings | Protected area managers, Sanctuary / conservancy managers & general public | Continuous | GZLO, NGZSC & stakeholders |
| SO1.2 Administrative structure | 1.2.1 Finalization of reviewed draft of Grevy's zebra Conservation & Management strategy | National conservation strategy document | National population | 5 months | Head species KWS & GZLO |
| | 1.2.2 Launch of the Grevy's zebra strategy | Grevy's zebra strategy launched | National strategy | 7 months | NGZSC |
| | 1.2.3 Constitute site committees in Grevy's zebra ranges where there are none | 4 new site committees | Tsavo, Meru (Garissa, Mbalambala, Modogashe,), Marsabit, Moyale (transboundary) | 1 year | GZLO & stakeholders |
| | 1.2.4 Review TORs for site committees | Reviewed TORs | All site committees | 3 months | GZLO & site committees |
| | 1.2.5 Lobby for recognition of GZLO within KWS structure | Fully recognized official GZLO within KWS structures | KWS Institution | Continuous | Head species KWS & NGZSC |
| | 1.2.6 Liaise with the NGZSC, Executive committee & site committees | Effective & efficient communication in the structured units | All the committees | Continuous | GZLO, NGZSC & Executive Committee |
| SO1.3 Enhance data management | 1.3.1 Consolidate, review & report back regularly to stakeholders | Quarterly reports | Progress | Continuous | GZLO |
| | 1.3.2 Review TORs of NGZSC | TORs reviewed | Reviewed TORs | Immediate | NGZSC |
| | 1.3.3 Improve existing Grevy's zebra database | Functional database | Up to date database | Continuous | GZLO, NGZSC |
| SO1.4 Monitoring & Evaluation | 1.4.1 Prepare annual implementation status report | Annual reports | Progress | Annually | GZLO, NGZSC |
| SO1.5 Resource mobilization | 1.5.1 Prepare fund raising Proposal | A successful Proposal | One | Continuous | GZLO, NGZSC & stakeholders |
| | 1.5.2 Develop Joint projects with stakeholders | Successful joint projects undertaken | One | Continuous | GZLO, NGZSC & stakeholders |
| | 1.5.3 Initiate & publicize Grevy's zebra awareness events | National & local events | One | Continuous | GZLO, NGZSC & stakeholders |
| | 1.5.4 Enhance collaboration with local & international institutions | Meetings held, workshops organized & proceedings & minutes produced | Universities, NGOs, EWCA | Continuous | GZLO, NGZSC & stakeholders |

**Table 2: SO - 1: Coordination**

# SO - 2: Enhancement of Stakeholder Partnerships in Grevy's Zebra Conservation

Grevy's zebra conservation and management will be promoted and benefits will be enhanced through partnerships, to develop a sustainable resource and management capacity amongst Grevy's zebra stakeholders.

## Rationale

Grevy's zebra management and conservation requires effective partnerships with local communities, private landowners, other government agencies, Ethiopian conservation entities, and other relevant stakeholders.

During the 2004 Grevy's Zebra Workshop, a list of stakeholders was drawn up. It was agreed that while all stakeholders were equally important, there were some stakeholders with more responsibility than others. For the purposes of this conservation strategy, it is important to highlight the role of the main groups that were identified.

## Central government and county government

This refers to all levels within the Government of Kenya, including Ministries, Office of the President and Local Government. These different levels can make decisions on a range of policies and legislation that may directly or indirectly impact Grevy's zebra conservation. The Kenya Wildlife Service is ultimately responsible for the implementation and monitoring of this conservation strategy for Grevy's zebra.

## Communities

Community stakeholders in northern Kenya comprise of the following ethnic groups: Samburu, Rendille, Borana, Gabbra, Maasai and Somali. In northern Kenya, there are a growing number of community conservancies in key Grevy's zebra range now managing their land for wildlife conservation (www.nrt-kenya.org). These institutions are particularly strong because they have built real capacity in acquiring the appropriate tools for effective conservation management. The community conservancies are therefore a primary stakeholder in the implementation of this strategy. Working through these established institutions will ultimately determine the long-term viability of the remaining Grevy's zebra population and enhance the sustainability of local and regional conservation plans for the species.

## Implementing Agencies

These agencies include conservation organisations (NGOs, Fora and Trusts) that carry out Grevy's zebra conservation activities. They fundraise specifically for Grevy's zebra and implement the conservation of the species in collaboration with local partners on the ground. They also promote Grevy's zebra conservation at local, national and international levels.

### Private sector

**Conservancies:** Private conservancies hold a significant percentage of Grevy's zebra on their land and provide a more controlled environment for the management of the species to ensure that their numbers continue to increase.

**Private ranches:** Many of the private ranches within Grevy's zebra range are located in Laikipia District. The majorities of these private landowners promote and invest in wildlife conservation on their land because their financial returns are dependent on having stable wildlife populations. Thus their input into the formation of this conservation strategy and their involvement in its implementation is crucial.

### Tourism sector

Stakeholders within the tourism industry include hotels, lodges, camps and tour operators that operate on private and/or community land within Grevy's zebra range. The tourism industry is in a position to actively promote endangered species conservation to its clients. It also provides a wildlife-based income to landowners thereby supplementing the income needed for their conservation operating costs and diversifying their economic base away from pure livestock keeping.

### Research/Academic Institutions

The effectiveness of this strategic plan will largely rely on having reliable information on the conservation challenges being faced in Grevy's zebra conservation. At present there are gaps in knowledge that need to be addressed for conservation to be effective and those institutions that are involved in Grevy's zebra research and monitoring therefore having a crucial role to play.

### Donors

Donors include those focusing on Grevy's zebra conservation as a single species as well as those supporting community development and natural resource management which are inextricably linked to Grevy's zebra conservation.

### Ethiopia

Regional collaboration between Ethiopia and Kenya is critical for the long-term conservation of Grevy's zebra, especially along the border of the two countries where Grevy's zebra range across both countries. In addition, regional collaborative initiatives are powerful for fundraising as conservation efforts are focused across the entire range of the species. One of the aims of this strategy will be to strengthen regional links with Ethiopia.

| Strategic Objective | Action | Indicator | Target Area/ Grevy's zebra population | Time | Responsibility frame |
|---|---|---|---|---|---|
| SO 2.1: Enhancement of stakeholder partnership in Grevy's zebra conservation | 2.1.1 Develop Income Generating Activities | 5* No of ecotourism projects/ facilities; Increased income/ alternative economic opportunities for local communities | All Grevy's zebra areas | Five years, over the course of this plan | KWS (GZLO working with CWS), GZT, NRT, LWF, AWF |
| | 2.1.2 Education & Awareness | 8 meetings (2 per year per site committee) | All Grevy's zebra areas | Annual meetings | KWS CWS), Site committee members, KWS GZLO to coordinate meetings |
| | 2.1.3 Recruit & Train community scouts | Number of scouts employed & trained | All Grevy's zebra areas | Continuous | KWS, Community Conservancies, Conservation NGOs, County Government |
| | 2.1.4 Develop & Gazette participatory land use plans | Number of management plans developed, gazetted & implemented proportion of developments that are compliant with environmental regulations | All Grevy's zebra areas | Continuous | County Government, Community conservancies, Private Landowners, Private developers, KWS |
| | 2.1.5 Initiate (and sustain) grazing management committees | No. of committees initiated | Community Conservancies | Continuous | Community conservancies, Conservation NGOs – NRT, GZT among others |
| | 2.1.6 Hold trans-boundary meetings | No of meetings conducted – 2 per year | Northern Kenyan/ Southern Ethiopia & Grevy's zebra areas | Annual | KWS GZLO, EWCA |
| | 2.1.7 Needs assessment and capacity building | Report on needs assessment | Northern Kenyan/Southern Ethiopia, Grevy's zebra areas | Second year | KWS GZLO, EWCA |
| | 2.1.8 Submission of progress reports on implementation to the stakeholders & vice versa | Reports submitted | All Grevy's zebra areas | Annual | KWS GZLO & all partners |
| | 2.1.9 Document local knowledge about Grevy's zebra & conservation issues | Report produced | Community areas | Second year | Community conservancies, Conservation NGOs – NRT, GZT among others |

**Table 3: SO - 2 Partnerships**

# SO - 3: Enhancement of Grevy's Zebra Conservation and Habitat Management

To secure and effectively manage Grevy's zebra habitat

## Rationale

This strategic objective looks holistically at securing Grevy's zebra habitat where their current status can be maintained or enhanced with effective adaptive management. Focus will be on proper land use planning with water and grazing regimes taking centre stage. Adaptive management will also ensure that land degradation is managed while enhancing potential for forage productivity in Grevy's zebra range. Infrastructural development within the Grevy's zebra range is welcome and there is a dire need to work with partners to ensure that these developments have minimal impact to Grevy's zebra populations or their range/ habitat. Over-exploitation and monopolization of resources across Grevy's zebra range and the resulting competition with domestic livestock remain a critical conservation challenge (Kingdon, 1997, Williams, 2002, Williams and Low, 2004). Securing grazing and water resources and addressing the escalating land degradation in northern Kenya are critical to the long term survival of the species.

**Access to water:** Exclusion from water sources by pastoral people has been identified as a serious threat to successful recruitment into Grevy's zebra populations (Nelson and Williams, 2003; Rowen, 1992; Williams, 1998). Because lactating females must drink water daily (Becker and Ginsberg, 1990; Ginsberg, 1989), in areas of high livestock density the resulting monopolization of water sources by livestock forces lactating females to graze further from water (Nelson and Williams, 2003). As a result of moving considerable distances to access water, and often at night, foal and juvenile survival is lower as the risk of predation increases at night (Williams, 1998) and the distances travelled may place physiological stress on foals (Rubenstein, 1986). Since foals are the weak link in the life cycle of Grevy's zebra, targeting access to resources that are required by lactating females is critical for enhancing foal survival and improving recruitment rates into populations (Williams, 1998; 2002).

It will be critical to maintain water sources that are not used by other communities who have no link to conservation. For example, springs within the core range of Grevy's zebra (including communities and the National Reserves) can easily be cared for and protected against over-exploitation. In addition to enhancing access to and conserving local water sources, a broader focus is needed on addressing the over-exploitation of the Ewaso Ng'iro River for highland irrigation. Some 60 - 70% of Kenya's Grevy's zebra population rely on this river basin. Therefore its long-term health is critical (Williams, 2002).

**Degradation, loss of habitat and competition with livestock:** With an increasing human population there may be a parallel increase in livestock numbers. Therefore research focusing on ecosystem ecology that incorporates climate, soils, primary productivity, herbivory and predation is required to shed light on these issues. It may be appropriate to expand Holistic Management of land, an approach that takes advantage of the high densities of livestock and uses them as a tool for restoring health to degraded land (Savory and Butterfield, 1999). At the same time, the initiation of a community livestock programme such as that being implemented by the Northern Rangelands Trust (NRT, 2005) will provide access to livestock markets and diversification of livelihoods thus complementing the mutual aims of improving livestock condition without increasing numbers, and controlling grazing for the benefit of the wildlife and its range.

| Strategic Objective | Action | Indicator | Target Area/ GZ population | Time frame | Actors |
|---|---|---|---|---|---|
| SO3. 1 Improve and maintain natural Grevy's zebra habitat | 3.1.1 Proper land use planning (settlement, tourism, water, core areas, grazing, etc.) | Approved and implemented land use plans | Grevy's zebra range | Conservancies – 2 yrs<br>Outside – 5 yrs | NRT, AWF, GZT, KWS & conservancies |
| | 3.1.2 Plan holistic grazing in conjunction with water development/use | No. of grazing plans developed & implemented. Increased plant cover (conservancies); reduced moribund grass biomass (Lewa) | Grevy's zebra range | Conservancies – 2 yrs<br>Lewa – 2 yrs<br>Outside – 3 yrs | NRT, AWF, GZT, LWF, Lewa, Ministry of Livestock Range Dept., conservancies |
| | 3.1.3 Clear invasive species, re-seed important grass species, & harvest native grass seed | Acreage cleared, acreage re-seeded, weight of grass seed harvested | Community conservancies | Conservancies – annual activity | NRT, AWF, GZT, KWS & conservancies |
| | 3.1.4 Manage soil erosion | No. and length of gullies healed; acreage of bare ground restored | Grevy's zebra range | Conservancies – 2 yrs<br>Outside – 5 yrs | NRT, AWF, GZT, KWS & conservancies |
| | 3.1.5 Identify & map key Grevy's zebra habitats (especially for foaling) | Final habitat suitability maps that highlight key areas | Grevy's zebra range | 3 yrs | NGZSC & KWS |
| | 3.1.6 Expand & maintain vegetation monitoring | Transects and data collection procedures established. Reports generated on vegetation conditions | Grevy's zebra range | Continuous | KWS, NRT, GZT & Conservancies |
| | 3.1.7 Implement training on range management, inclusive of women, morans, herders & elders | No. of participants trained<br>No. of distinct areas in which training has been conducted | Community conservancies | Continuous | KWS, NRT, GZT & Conservancies |
| | 3.1.8 Use information from monitoring to identify other critical habitats for Grevy's zebra and secure them | Map of potential areas to secure<br>Acreage of new areas secured | Grevy's zebra range | Continuous | KWS, NRT, GZT & Conservancies |
| SO3.2 Increase and maintain access to water | 3.2.1 Identify & map key dry season water sources for Grevy's zebra | Water distribution map; integrate with existing land use plans | Grevy's zebra range | Continuous | KWS, NRT, GZT & Conservancies |
| | 3.2.2 Identify options for increasing water accessibility & availability | No. water sources managed for accessibility and availability | Grevy's zebra range | Continuous | KWS, NRT, GZT & Conservancies |
| | 3.2.3 Assessment of Milgis flooding issue | Assessment report | Milgis area | 2 yrs | KWS, NRT, GZT & Conservancies |

| Strategic Objective | Action | Indicator | Target Area/ GZ population | Time frame | Actors |
|---|---|---|---|---|---|
| | 3.2.4 Implement key recommendations for Milgis flooding | Reduced number of incidences of Grevy's zebra stuck in the mud | Milgis area | Based on assessment recommendation | KWS, NRT, GZT & Conservancies |
| | 3.2.5 Strengthen coordination of WRUA activities | Implementation of the Water Act | Grevy's zebra range | Continuous | WRUAs, WRMA |
| | 3.2.6 Lobby for catchment restoration | Number of meetings during which restoration is discussed | Mt. Kenya, Kirisia Matthews, Mt. Marsabit | Continuous | Grevy's zebra stakeholders to lobby Provincial Admin, CFAs and KFS |
| | 3.2.7 Implement a tree planting campaign | Number of trees planted<br>Length of river bank restored<br>Total area planted | Grevy's zebra range (catchment area, degraded areas) | Continuous | ALL |
| SO3.3 Minimize impact of major infrastructure projects on Grevy's zebra habitat and populations | 3.3.1 Ensure coordinated collaboration with government ministries and development partners for any infrastructure development | Shared information<br>No. consultative meetings<br>No. coordinated development activities<br>Creation of road signs and speed bumps in critical areas for Grevy's zebra | Grevy's zebra range | Continuous | ALL |
| | 3.3.2 Develop habitat suitability maps to try to avoid development in potentially important habitat areas | Final maps produced and distributed to stakeholders | Grevy's zebra range | 1 yr (urgent) | KWS, NRT, GZT and Conservancies |
| | 3.3.3 Identify critical corridors that should be protected to minimize fragmentation | Corridor maps created and distributed | Grevy's zebra range | 2 yrs | All |

**Table 4: SO - 3 Habitat management**

# SO - 4: Establish a Programme for Monitoring and Managing Grevy's Zebra Population Health

Enhance monitoring of numbers, population trends, distribution and incidence of disease, to maintain vigilance for and reaction times to disease outbreaks.

## Rationale

The outbreak of anthrax in the Wamba area of northern Kenya between December 2005 and March 2006 (Manyibe, *et al*., 2006) highlighted the importance of developing a preparedness and action plan to address disease outbreaks in wild populations of Grevy's zebra. There is very little information on disease and epidemiology in free ranging Grevy's zebra. This information is needed to properly assess the role of disease in Grevy's zebra population dynamics.

Preventing outbreaks is preferable to treating them, both in terms of the high cost of mobilising resources to vaccinate wildlife and the losses of wildlife and livestock incurred when outbreaks are severe. Where the interface between livestock and wildlife is diffuse, such as in northern Kenya, it is recommended that annual vaccinations of livestock against diseases such as anthrax are undertaken. In the long-term, the recurring annual expense of vaccinating livestock should be incorporated into the conservation plans for Grevy's zebra. In particular this activity should be focused on livestock in areas of high Grevy's zebra density such as Wamba.

Monitoring numbers and distribution of Grevy's zebras is a component of assessing population health.

Addressing land degradation in northern Kenya as highlighted in Strategic Objective 3 is another long-term measure that will help to minimise disease outbreaks such as anthrax. Increased grass cover will reduce the risk of animals ingesting spores from exposed soil during periods of drought.

| Strategic Objective | Action | Indicator | Target Area/ GZ population | Time frame | Actors |
|---|---|---|---|---|---|
| SO4.1 Disease | 4.1.1 Develop guidelines on disease surveillance & outbreak investigation | Guideline developed | Grevy's zebra range | 6 months | DRC |
| | 4.1.2 Develop guidelines on the handling of biological samples | Guideline developed | Grevy's zebra range | 6 months | DRC |
| | 4.1.3 Develop guidelines on disease management & control that includes carcass management | Guidelines developed | Grevy's zebra range | 6 months | DRC |
| | 4.1.4 Develop list of important diseases & conditions in Grevy's zebra & brief descriptions | List developed | Grevy's zebra range | 6 months | DRC |
| | 4.1.5 Develop listserv of experts on diseases in Grevy's zebra | Listserv developed | Grevy's zebra range | 6 months | DRC |
| | 4.1.6 Identify knowledge gaps in Grevy's zebra disease research | Knowledge gaps identified | Grevy's zebra range | 1 year | DRC |
| | 4.1.7 Proposal to identify critical gaps in the implementation of the DRC's activities. | Successful proposal | Grevy's zebra range | 1 Year | DRC |
| | 4.1.8 Workshop on Grevy's zebra diseases & other factors limiting the population | Workshop | Grevy's zebra diseases | 3 Years | DRC |
| | 4.1.9 Prepare action plan for Disease response & surveillance | Action plan document | Grevy's zebra range | By end 2013 | DRC |
| | 4.1.10 Annual vaccination for livestock in Grevy's zebra hotspots (Anthrax) | Successful vaccination annual exercise | Samburu, Isiolo, Laikipia and Laisamis | Annual | DRC |
| SO4.2 Health | 4.2.1 Supplement feeding in extreme conditions for populations defined to be in poor health | No. of timely supplementation | Grevy's zebra defined to be in poor health | As needed | All |
| SO4.3 Predation | 4.3.1 Support ongoing research on effect of predation on Grevy's zebra | No. of Research projects supported | Lewa, Oserian and Meru Park, Marsabit, North Horr | Continuous | KWS – Various committees |
| | 4.3.2 Work closely with the carnivore task force to identify appropriate predator management in population known to be limited by predation | No. of appropriate predator management intervention | Lewa, Oserian and Meru Park | Continuous | KWS – Various committees |
| SO4.4 Hybridization | 4.4.1 consolidate more information | Consolidated reports from OPC & Tsavo | Ol Pejeta, Tsavo | Continuous | OPC, Tsavo, DRC |
| SO4.5 Security | 4.5.1 Continuous training of community scouts/rangers in wildlife protection | No. of trainings on wildlife protection | Community & private conservancies | Continuous | KWS, NRT, GZT |

| | | | | | |
|---|---|---|---|---|---|
| SO4.5 Security | 4.5.2 Employ and equip community scouts in areas where illegal killing of Grevy's zebra is a threat | No. of staff employed & equipment acquired | Isiolo area, LMD (Burat 1 and 2), Elbarta, Sibiloi, West of Mathews ranges, Lturot/Arapal, Churr, Ltungai/Kirimon | Continuous | NRT, GZT |
| | 4.5.3 Increase education and awareness in Grevy's zebra in areas where illegal killing is a threat | No. of education & awareness activities | Isiolo area, LMD, Elbarta, Sibiloi, West of Mathews ranges | Continuous | NRT, GZT, KWS |
| SO4.6 Population monitoring | 4.6.1 Update Grevy's zebra distribution map | Up to date Grevy's zebra distribution map | Grevy's zebra range | 2 years | NGZSC |
| | 4.6.2 Establish population estimate - National aerial survey-refine survey method best suited for Grevy's zebra | Refined confirmed Grevy's zebra numbers | Grevy's zebra central range | November 2012 | All stake holders |
| | 4.6.3 Demographic monitoring and population vital rates - Photo ID monitoring continued & expanded | Up to date information on population demographics | Samburu, Laikipia, Laisamis | Continuous | GZT, MW |
| | 4.6.4 Establish population estimates in key Grevy's zebra areas - Ground survey to establish population numbers in Key Grevy's zebra ranges | Confirmed number of individuals in key populations in Grevy's zebra range | West gate, Meibae, Samburu Buffalo springs | annually | NRT, GZT, KWS |
| | 4.6.5 Community/ranger based monitoring continued & expanded | % expansion of Community based monitoring | Community & private conservancies, community scout programmes | Continuous | GZT, NRT |
| | 4.6.6 Verify reports of Grevy's zebra in areas occurrence is unconfirmed | No. of reports verified | Garissa, Modogashe, East of Marsabit, | 1 year | KWS, GZLO |
| | 4.6.7 GSM collars | No. of GSM collars installed & successful in providing data | Periphery of range where connectivity not well known, & core range | 2 years | NGZSC |
| | 4.6.8 Camera Trap monitoring continue & expand | No. of camera traps projects | Areas with unverified reports of Grevy's zebra | Continuous | NGZSC, GZT, KWS |
| SO4.7 Connectivity | 4.7.1 Identify areas where connectivity of Grevy's zebra range is possible | No. of connectivity areas identified | Periphery of range where connectivity not well known, & core range | 2 years | NGZSC, GZLO |
| | 4.7.2 Develop partnerships/conservancies with communities or landowners in areas identified as critical for connectivity | No. of partnerships developed in the identified connectivity area | Periphery of range where connectivity not well known, & core range | Continuous | NRT, KWS, GZT |
| SO4.8 Small populations | 4.8.1 Translocation of additional animals to ensure existing small, breeding populations are viable | No. of Grevy's zebra translocated to supplement small populations | Meru, Oserian, OPC | Continuous | Conservancies, KWS, NRT, GZT |
| | 4.8.2 Develop guidelines on the number & demographic structure for a viable founder population to re-establish Grevy's zebra in their natural range | Guideline document for viable founder population | Grevy's zebra natural range | Continuous | NGZSC |

**Table 5: SO - 4 Grevy's zebra health**

# SO - 5: Enhancement of Transboundary Grevy's Zebra Conservation

To manage Grevy's zebra populations through an effective transboundary conservation frame work

## Rationale

Regional collaboration between Ethiopia and Kenya is critical for the long-term conservation of Grevy's zebra, especially along the border of the two countries where Grevy's zebra range across both countries. In addition, regional collaborative initiatives are powerful for fundraising as conservation efforts are focused across the entire range of the species. One of the aims of this strategy will be to strengthen regional links with Ethiopia.

Taking cognizance of the fact that Grevy's zebra are only found in Kenya and Ethiopia in their natural range, it is very important to establish a collaborative transboundary framework to effectively manage transboundary population areas and their habitats. This will not only steer a regional landscape approach to Grevy's zebra conservation but also synergize Kenya and Ethiopia on conservation matters. This frame work will work with identified partners both locally and internationally in creating an environment for effective cross - border activities i.e. cross - border meetings on conflict resolutions and development of action plans. Through such initiatives both countries will also be implementing activities on conservation of cross - border and migratory species.

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| Strategic Objective | Action | Sub Action/Activities | Indicator | Target Area/ GZ population | Time frame | Responsibility |
|---|---|---|---|---|---|---|
| SO5.1 Trans boundary management | 5.1.1 Identify & engage transboundary stakeholders | Identify the stakeholders (local, national & regional levels) | No & % of stakeholders | Kenya-Ethiopia borders | 2013 | KWS, EWCA |
| | | Establish a transboundary Grevy's zebra site committee | Committee established & functional | Kenya-Ethiopia borders | 2013 | NGZSC & EWCA |
| | | Initiate cross boarder meeting & conflict resolution mechanisms | No of meetings | Kenya-Ethiopia borders | Continuous | NGZSC & EWCA |
| | | Develop regional & national action plans for the species | Action plan developed | 2 Action plans to be developed | 2013 | NGZSC & EWCA |
| | 5.1.2 Revision & harmonization of Policies | Review existing policies & legislation | Policy review Report | 1 policy review report | 2014 | KWS, NGZSC and EWCA |
| | | Signing of transboundary Grevy's zebra agreements | Agreement signed | 1 agreement signed | 2013 | KWS, NGZSC & EWCA |
| | 5.1.3 Monitoring & Information sharing | Monitor the population across the border & develop a database | Functional database established | 1 database established | 2013 | NGZSC & EWCA |
| | | | Status/census reports | 2 per year | continuous | NGZSC |
| | | Develop collaborative information sharing mechanism | Information sharing protocol /MoU established | 1 | continuous | KWS, EWCA |
| | | Establish transboundary connectivity of Grevy's zebra population (corridors) | Signed commitment | 1 commitment signed | 2014 | KWS, EWCA |
| | 5.1.4 Capacity Building & resource mobilization | Develop joint capacity building exercises | No of capacity building workshops | 2 per year | continuous | NGZSC & EWCA |
| | | Develop initiatives for joint resource mobilization (census & capacity building) | No of joint resource initiatives | 2 for the period | 2013 & 2015 | KWS, NGZSC & EWCA |

**Table 6: SO - 5 Transboundary Grevy's zebra conservation**

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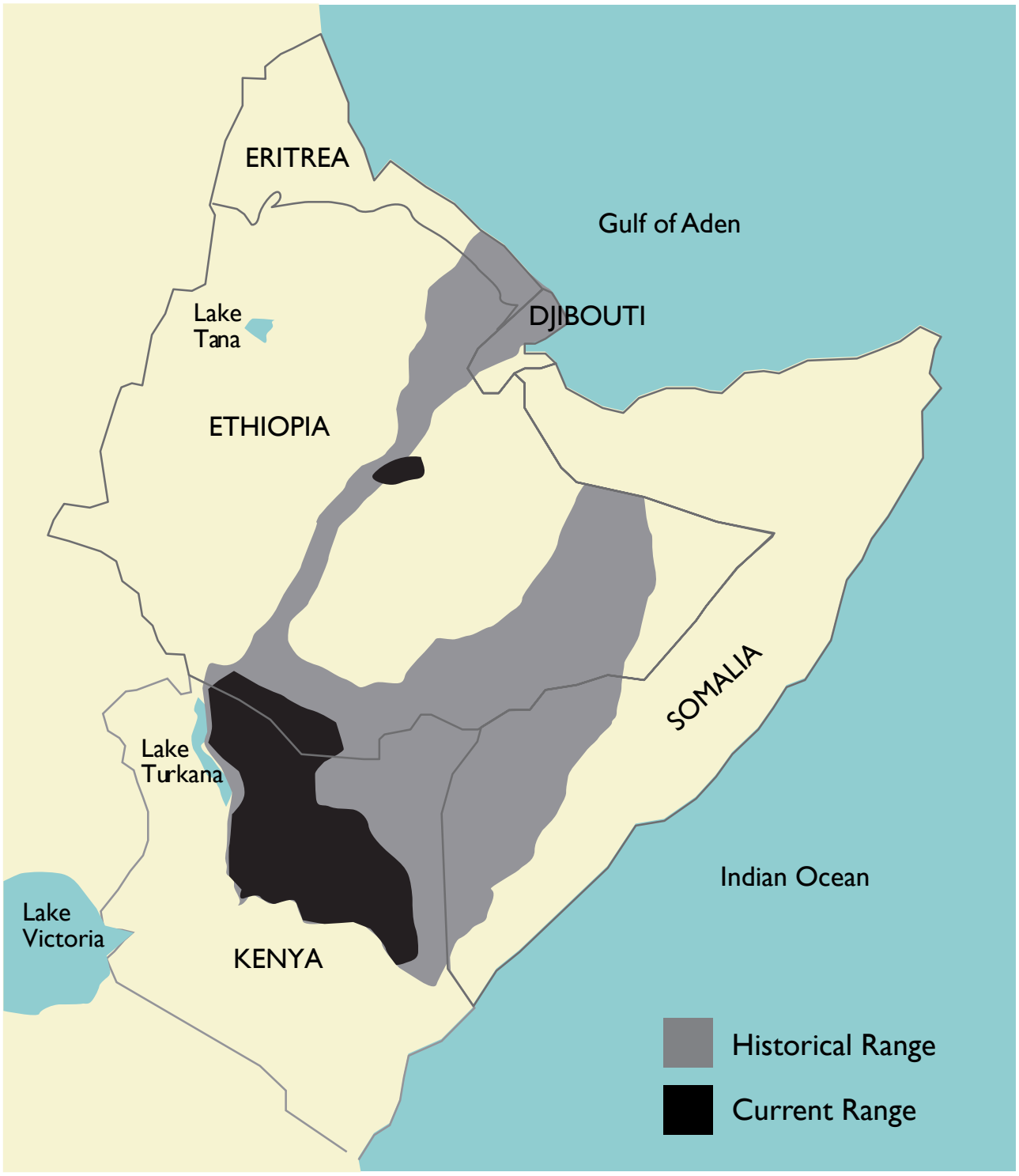
## Annex 1: Historic and Present Distribution of Grevy's Zebra in the Horn of Africa



# Annex 2: Updated Numbers of Grevy's Zebra

This was done by the stakeholders during the National Grevy's Zebra Conservation Strategy review Workshop in Nanyuki April 2012.

| No. | Region | Estimated population | Year when estimation was done |
|---|---|---|---|
| 1. | North region (Marsabit 21), (Sibiloi 42) | 70 | 2011/2012 |
| 2. | Wamba region | 1310 | 2008 |
| 3. | Laisamis | 151 | 2012 |
| 3. | El-Barta region | 30 | 2008 |
| 4. | Laikipia region | 916 | 2008 |
| 6. | Tsavo | 47 | 2011 |
| 7. | Meru | 8 | 2012 |
| 8. | Oserian Wildlife Sanctuary Naivasha | 14 | 2012 |
| 9. | Garissa | Unknown | |
| 10. | Alledeghi Wildlife Reserve, Ethiopia (196 +/-53) | 249 | 2010 |
| 11. | Chew Bahir and Sarite (Southern Ethiopian population) | 32 | 2010 |
| 12. | Global captive Grevy's zebra population (113 facilities worldwide) | 491 | 2011 |
| | **Total estimated population** | **3,318** | |

# Annex 3: Summary of the Implementation Progress of the Expired Conservation Strategy (2007-2011)

**SO 1: Coordination of the Implementation of the 2007 – 2011 Conservation and Management Strategy**

| Accomplished Activities | Result |
|---|---|
| a. Establishment of the Grevy's Zebra Liaison Office | Coordination between stakeholders and information flow has improved |
| b. Launch and dissemination of strategy | DONE |
| c. Establishment of executive, management, technical and site committees | Executive & management committees have never met<br>Technical committee is working well<br>Site committees have not been effective |
| d. Develop TOR for committees | DONE |
| e. Development of Grevy's Zebra National Database | DONE |
| **Impending Activities** | **Result** |
| f. Launch of remaining site committees | As above in SO1 c |
| g. Establish a KWS outpost | Not done |
| h. Acquisition of a project vehicle | Not done |
| i. Centralization of data at KWS | On going |

**SO 2: Enhancement of Community Participation in Grevy's zebra Conservation**

| Accomplished Activities | Result |
|---|---|
| General community engagement | Awareness has been raised in existing and new communities; overall a successful SO |

**SO 3: Protection and Legal Status**

| Accomplished Activities | Result |
|---|---|
| a. KWS working together with community security personnel | Security and anti-poaching operations enhanced |
| **Impending Activities** | **Result** |
| b. Upgrade legal status | In progress |
| c. Minimizing impact of development on Grevy's zebra populations | Carried forward to the second edition of the strategy |

**SO 4: Enhance Management of Natural Resources to Ensure Viable Habitat and Access to critical Resources for Grevy's zebra**

| Accomplished Activities | Result |
|---|---|
| a. Core conservation areas | Remove this as an activity as core conservation areas are not identified around Grevy's zebra but around tourism |
| b. Habitat restoration work | Successful and expanding |
| c. Supplementary feeding and water management in drought years | Successful |
| **Impending Activities** | **Result** |
| d. Ewaso River off take | Mid and lower Ewaso WRUA have been established |
| e. GSM collar workshop | Carried forward to the second edition of the strategy |

**SO 5: Management of Grevy's zebra Diseases**

| Accomplished Activities | Result |
|---|---|
| a. Biological samples collected from immobilised Grevy's zebra | Ongoing |
| b. Community scouts trained in Grevy's zebra disease monitoring | Training successful but result not effective |
| c. DRC constituted | No meetings convened due to limited availability of members |
| d. Mortality database established | Ongoing |

**SO 6: Management of Grevy's zebra Predation, Inter-Specific Competition and Hybridisation**

| Accomplished Activities | Result |
|---|---|
| a. Identify populations where predators are thought to be limiting Grevy's zebra | Ongoing in Lewa and Meru |
| b. Monitor hybridisation | Ongoing in OPC |
| **Impending Activities** | **Result** |
| e. Identify appropriate management options (preferably non-lethal) to minimise the impact in close coordination with other species strategies | Ongoing |
| f. Identify and move male Grevy's zebra causing hybridisation | Carried forward to the second edition of the strategy |

**SO 7: Capacity Building**

| Accomplished Activities | Result |
|---|---|
| a. Training community personnel | Successful and ongoing |
| b. School and higher education of local community | Successful and ongoing |
| c. Training and infrastructure | Successful and ongoing |

**SO 8: Grevy's zebra Population Monitoring**

| Accomplished Activities | Result |
|---|---|
| a. Intensive photo-id monitoring | Established in Samburu, Laikipia and Lewa |
| b. Ground survey of LMD area | Challenges from insecurity |
| c. Community-based monitoring scouts | Successful and expanded |
| d. GSM collars | Ongoing |
| e. National aerial survey | Undertaken in November 2008 |
| f. Camera-trap monitoring | Undertaken to assess drought response interventions in 2011 |
| **Impending Activities** | **Result** |
| g. Workshop to produce new Grevy's zebra distribution map | To be implemented for the second edition of the strategy. |
| h. Circulation of outputs from monitoring as per SO 1 i. | To be re-implemented |
| i. Integration of Grevy's zebra monitoring data into MIST | To be implemented |

**SO 9: Increasing Grevy's zebra Numbers**

Verification of this SO cannot be confirmed until another census of Grevy's zebra is carried out in November 2012. Censuses are to be carried out every three years to monitor numbers and distribution in Grevy's zebra rangelands.

# Annex 4: List of Participants

| No. | Name | Title/ Conservation Area |
|---|---|---|
| 1 | George Anyona | GZLO, KWS |
| 2 | Kifle Argaw | Director General, EWCA |
| 3 | Abdi Boru | Chief Warden, SNR |
| 4 | Geoffrey Chege | Chief Conservation Officer, LWC |
| 5 | Julius K Cheptei | KWS, MCA |
| 6 | Zeke Davidson | Marwell Wildlife |
| 7 | Mohamed Golompo | Manager, Biliquo Bulesa |
| 8 | Elaine Hawkins | Wildlife veterinarian |
| 9 | Fanuel Kebede | Research Scientist, EWCA |
| 10 | Juliet King | NRT |
| 11 | Peter Lalampaa | Senior Manager, GZT |
| 12 | Peris A Lare | KWS |
| 13 | Peter Lekeren | KWS, Samburu |
| 14 | Peter Lekurtut | Manager, Mpus Kutuk Conservancy |
| 15 | Benson Lengalen | AWF |
| 16 | Daniel Letoiye | Westgate Conservancy |
| 17 | Moses Lolmolosooni | Samburu National Reserve |
| 18 | Fred Longonyek | Manager, Meibae Conservancy |
| 19 | Belinda Low Mackey | Executive Director, GZT |
| 20 | J M Machomba | Director, HOPE |
| 21 | Peter Matunge | Lekurruki Conservancy |
| 22 | Aggrey Maumu | KWS, Laikipia |
| 23 | Paul Muoria | Nature Kenya |
| 24 | Evans M Murithi | KWS |
| 25 | Silas Murithi | Warden, KWS Isiolo |
| 26 | Charles Musyoki | KWS, HQS |
| 27 | Matthew Mutinda | KWS |
| 28 | Mary Mwololo | LWC |
| 29 | James Naperit | Kalomudang Conservany |
| 30 | John Ndegwa | Oserian Wildlife Sanctuary |
| 31 | Bernard Ngoru | TCA, KWS |
| 32 | Mordecai O Ogada | Executive Director, LWF |
| 33 | Fred Omengo | KWS |
| 34 | Paul A.O Opiyo | Senior Warden, KWS Wildlife Utilization MCA |
| 35 | Jacob Orahle | KWS, Meru Park |
| 36 | Winston Ouna | Snr. Research Scientist, KWS Eastern |
| 37 | Mohamed Sanjir | Melako Conservancy |
| 38 | Siva Sundaresan | DZF |
| 39 | Dickson Too | KWS, Northern |
| 40 | Elizabeth Tupper | Researcher, Princeton University |
| 41 | Paul Udoto | KWS, HQS |
| 42 | Dominic Wambua | KWS, Tsavo East |
| 43 | Ben Wandago | AWF |
| 44 | Antony Wandera | KWS |



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CONSERVATION & MANAGEMENT STRATEGY for

# GREVY'S ZEBRA

*(Equus grevyi)* in KENYA (2012-2016)