Conservation and Management Strategy for the Black Rhino

and

Management Guidelines for the White rhino in Kenya

(2007-2011)

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KENYA WILDLIFE SERVICE
conserving wildlife for kenyans and as a world heritage

Conservation and Management Strategy for the Black Rhino

(Diceros bicornis michaeli)

and

Management Guidelines for the White rhino

(Ceratotherium simum simum)

in Kenya (2007 - 2011)

Formulated at the Rhino Stakeholders' Workshop, Naivasha

29th January - 2nd February 2007

Third Edition, 2007

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http://www.kws.org

This document was prepared through a participatory approach that included a Rhino Stakeholders' Workshop held between 28th January and 2nd February 2007 and site-based discussions with rhino conservation managers in April and May 2007. Kenya Wildlife Service (KWS) initiated the process and was the primary financier. This document was jointly compiled by the Rhino Programme of Kenya Wildlife Service Headquarters in Nairobi and Conservation Programmes of the Zoological Society of London.

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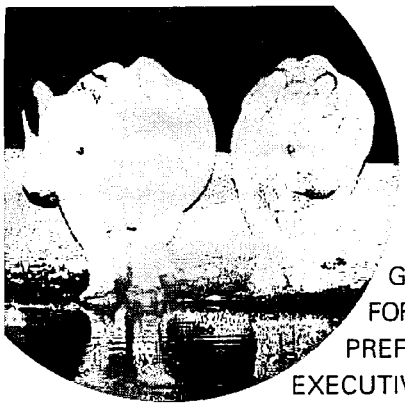

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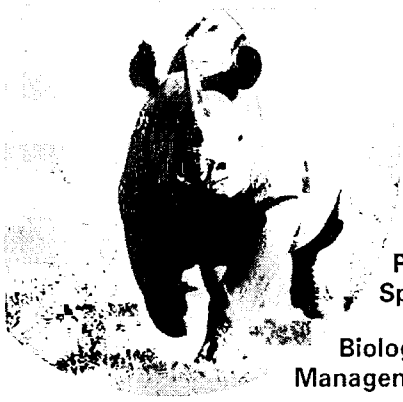
ABBREVIATIONS AND ACRONYMS

AD	Area Director
AfRSG	IUCN SSC African Rhino Specialist Group
AMC	Area Management Committee
APLRS	Association of Private Land Rhino Sanctuaries
CITES	Convention of International Trade in Endangered Species and Wild Fauna and Flora
COY	Company Commander
CR	Community Ranch
CRCA	Central Rift Conservation Area
DD-BR&M	Deputy Director - Biodiversity Research and Monitoring
DD-C&WS	Deputy Director - Community and Wildlife Service
DDS	Deputy Director – Security
DNA	Deoxyribose Nucleic Acid
ECA	Eastern Conservation Area
ECC	Ecological Carrying Capacity
ED	Education Department
EIAU	Environmental Impact Assessment Unit
FFI	Fauna & Flora International
FTS	Field Training School
GIS	Geographical Information Systems
GoK	Government of Kenya
GPS	Global Positioning System
GR	Game Reserve
H-EMU	Head – Ecological Monitoring and Biodiversity Evaluation
H-HC	Head – Human Capital
H-SCM	Head – Species Conservation and Management
H-VET	Head – Veterinary Services
IPZ	Intensive Protection Zone
IUCN	International Union for Conservation of Nature and Natural Resources (now called The World Conservation Union)
KARI	Kenya Agricultural Research Institute
KPR	Kenya Police Reservist
KWS	Kenya Wildlife Service
KWSTI	Kenya Wildlife Service Training Institute
MCA	Mountain Conservation Area
MoU	Memorandum of Understanding
MPCC	Maximum Productivity Carrying Capacity
MPT	Maasailand Preservation Trust
NCC	Narok County Council
NGO	Non-Governmental Organisation
NC	Nature Conservancy
NCA	Northern Conservation Area
NP	National Park
NR	National Reserve
OC	Officer in Charge
PA	Protected Area
RCA	Rhino Conservation Area
RCC	Rhino Consultative Committee
REC	Rhino Executive Committee
RMC	Rhino Management Committee
RP	Rhino Programme
RPC	Rhino Programme Coordinator
RR	Rhino Reserve
RS	Rhino Sanctuary

RS-Rhino	Research Scientist – Rhino
RTC	Rhino Technical Committee
SAD-C&WS	Senior Assistant Director Community and Wildlife Service
SCA	Southern Conservation Area
SCC	Social Carrying Capacity
SS	Senior Scientist
SSC	Species Survival Commission
SW	Senior Warden
TCA	Tsavo Conservation Area
TPP	Temporary Police Permit
TRC	Trypanosomosis Research Centre
USAID	United States Agency for International Development
WC	Wildlife Conservancy
WCMD	Wildlife Conservation and Management Department (now known as KWS)
WPU	Wildlife Protection Unit
ZSL	Zoological Society of London



GLOSSARY

Alien Plant Species A plant species that is not indigenous to a given place or area and instead has initially been accidentally or deliberately transported to its new location by human activity.

Biological Management In the context of this document, refers to the pro-active management of rhino populations (primarily through adjusting rhino stocking densities, but also managing the densities of other browsers and habitat management) to maintain rapid, healthy population growth, to minimise inbreeding and loss of genetic diversity. Rhino removal and introduction decisions are based on a population's breeding performance, social behaviour, genetic relationships, the rhino density relative to an area's habitat carrying capacity, vegetation conditions etc.

Boma A type of strong holding pen in which rhinos are placed after capture, before translocation, before release into a new area, or if a rhino is in need of ongoing veterinary attention.

Breeding Performance Primarily the female reproductive performance of a population. Measured by female ages at first calving, intervals between calving and the average proportion of adult females calving per year. These indicators are affected by habitat quality, stocking densities, adult female to male ratios and age of the females. High rates of biological growth result from good breeding performance.

Browsers Species that feed primarily on stems, twigs, buds, seed pods and leaves of trees and bushes as well as herbaceous plants and succulents (as opposed to grazers that eat grass or mixed feeders that eat both browse and grass).

Census Process of obtaining an estimate of population size, either through attempting to count all individuals or a portion of individuals and then subsequently adjusting these counts using some statistical process.

Clean Rhino A rhino with no individual identification features (and in the case of mark-recapture analyses, a rhino that does not have any obvious easy-to-record features such as ear-notches and as result cannot always be reliably identified by all observers, even if on occasion it can be identified using more subtle features by a key observer).

Confirmed Rhino Defined by KWS as an individual rhino seen within 1 year.

Conservancies Wildlife conservation areas owned and managed by local communities or private individuals or by partnerships between the two.

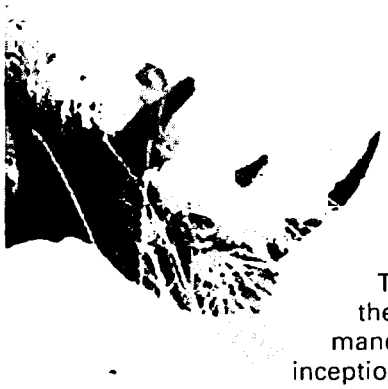
Critically Endangered IUCN Red List category of threat. A taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the IUCN criteria (A to E).

Demographic Pertaining to the study of population characteristics including structure (age, sex), growth rates, density, fertility and mortality, distribution and migration.

Ecological Carrying Capacity	The maximum number of a species (rhino) that can be (sustainably) supported by the resources of a specific area. Ecological Carrying Capacity (ECC) is a practical tool to help managers estimate Maximum Productivity Carrying Capacity (MPCC), i.e. the desirable stocking rate at which the highest possible growth rates can be attained.
Ecosystem	An ecosystem is a complete community of living organisms and the nonliving materials of their surroundings. Its components include plants, animals, and micro-organisms; soil, rocks, and minerals; as well as surrounding water sources and the local atmosphere.
Ex situ	In captivity and/or out of the natural range of a species.
Founders	Rhinos used to establish a new population. Effective founder number refers to the number of founders which are capable of breeding or have bred, i.e. those that contribute or are likely to contribute to the population's original gene pool and also which as far as it is known are unrelated.
Free Ranging	Rhinos inhabiting non-enclosed or non-confined areas e.g. outside fenced areas.
Genetically Viable	Having a realistic chance of avoiding problems associated with inbreeding, while also retaining sufficient genetic diversity to enable populations to continue to respond to future threats, such as disease outbreaks. A population of rhino requires a certain amount of genetic diversity, and consequently a minimum number of individuals which can ensure the continued survival of a population or species.
Growth Rate	The natural increase in a population's size, being the net result of additions from breeding and losses from natural mortalities, expressed as a percentage of the population size at the start of a year.
Heterozygosity	The presence of different alleles at one or more loci on homologous chromosomes. This can be important because if genetic diversity falls below certain levels this may negatively impact on performance and potentially even long term population viability.
Home Range	The area in which an animal usually resides and moves in search of water, food and shelter. Home range is different from territory – the latter being an area actively defended (usually by a dominant male).
Important Population	An IUCN SSC AfRSG rating to indicate a rhino population whose survival is considered extremely valuable in terms of survival of the species and/or subspecies. There are four sub-categories of Important Populations: *Important 1* - population increasing of stable and N=20–50 *Important 2* - population trend unknown or decreasing <25% (3–5 years) and N=51–100 *Important 3* - population decreasing but N=20–50 in breeding contact in a protected area (protected meaning with security rather than in formal conservation area) *Important 4* - population with 20+ dispersed outside a protected area with good potential for consolidation in an area that can take 20 founders.

Indigenous	Originating and living or occurring naturally in an area or environment.
In situ	Wild rhino being conserved in natural habitat within the historic range of the species.
Invasive Plant Species	A defined zone within a larger State protected area, private land or communal land where law enforcement staff are deployed at moderate to high density specifically for protecting rhino. The concentration of rhinos within an IPZ reflects natural patterns of distribution and movement, and is not the deliberate result of fencing and other methods of confinement.
Intensive Protection Zone (IPZ)	A subset of introduced or alien plant species that are rapidly expanding outside of their native range. Invasive species can alter ecological relationships among native species and can affect ecosystem function and human health. A species is regarded as invasive if it: (1) has been introduced by human action to a location where it did not previously occur naturally; (2) becomes capable of establishing a breeding population in the new location without further intervention by humans; (3) spreads widely throughout the new location. Certain invasive species can smother and replace indigenous species and can significantly lower carrying capacities for rhinos and other species impacting negatively on conservation of biodiversity (see also Alien Plants above).
Key Population	An IUCN SSC AfRSG rating to indicate a rhino population whose survival is considered critical for the survival of the species and subspecies. There are three defined types of Key population with *Key 1* being the most important at a Continental level. *Key 1* - population increasing or stable or N> 50% of subspecies *Key 2* - population increasing or stable and N=51–100 or N=26–50% of subspecies *Key 3* - population decreasing <25% and N>50 or N>100 even if population decreasing more than 25% (3–5 years).
Maximum Productivity Carrying Capacity	The desirable stocking rate at which maximum population growth rates can be attained, for rhino usually estimated as 75% of ECC. K-selected species like rhino are likely to have a plateau of nearly constant growth rate (density independent phase), followed by a ramp of density dependent decline once the maximum sustained yield level (*c.* 75% of carrying capacity) has been exceeded.
Maximum Sustained Yield	See Maximum Productivity Carrying Capacity.
Metapopulation	A number of sub-populations of a species managed collectively as one single population with occasional movement of animals from one sub-population to another.
Notching	A method of clipping a small section or sections (usually in a small 'v' shape) from a rhino's ear to allow the animal to be easily identified (and monitored) in the wild.

Parastatal	A State organisation that is semi autonomous from the central Government department, often run by a board. Parastatal organisations are free to retain any revenue they earn rather than have to remit it to a central treasury.
Probable Rhino	As used for rhino population estimates in official statistics compiled by the KWS Rhino Programme and is defined as an animal last seen between 1 and 2 years ago.
Range State	A Country or State in which rhinos currently occur or historically occurred.
r_{max}	The maximum possible biological growth rate.
Rhino Conservation Area	For the purposes of this document the term does not refer to formally defined Rhino Conservation Area (RCA) (Leader-Williams *et al.*, 1997); but rather the term is used simply to refer to areas with black rhino in natural habitat.
Sanctuary	A small part of a State protected area, private land or communal land in which rhino are deliberately confined through perimeter fencing, the use of natural barriers or other methods of confinement and where law enforcement staff are deployed at high density to protect the rhino population. The confinement of rhino within a sanctuary permits close observation and relatively intense management and protection of the rhino (Leader-Williams *et al.*, 1997).
Social Carrying Capacity	Maximum number of a rhinos that can be supported in a given area without the behavioural characteristic of rhinos compromising their reproductive performance. In practical terms the primary concern is the social carrying capacity of adult males.
Species	A taxonomic group whose members can interbreed and produce viable fertile offspring; also based on genetic and morphological differences between species.
Subspecies	In the case of rhino subdivision of a species, which differ genetically and phenotypically as well as spatially; and which are likely to have specific ecological adaptations to the areas and different habitats they are found in.
Taxon (plural taxa)	A classification using a taxonomic grouping of similar animals, ranging from broad phyla to species level or below.
Translocation	Movement of individual rhinos from one area to another, either to improve chances of survival, to establish new populations, to keep established populations productive (i.e. at or below estimated MPCC), or to introduce new blood into a population. Rhinos may be translocated to other areas of suitable habitat and to where they may be better protected from poachers. Translocation is a necessary component of metapopulation management.
Trypanosomosis	A potentially pathological infection by protozoan parasites *Trypanosoma* spp. The trypanosomes are transmitted by different species of tsetse fly (*Glossina* spp.), which are restricted to the African continent. *T. brucei* is reported to be pathogenic to rhino especially white rhino.



Foreword by the Chairman of Board of Trustees of KWS

The Kenya Wildlife Service (KWS) is a State Corporation established by the Act of Parliament, CAP 376 and amendment Act No. 16 of 1989 with a mandate of wildlife conservation and management in Kenya. 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 and local and international partners. The vision of the KWS is to become a "World Leader in Wildlife Conservation" with a mission to "sustainably conserve and manage Kenya's wildlife and its habitats in collaboration with stakeholders for posterity".

Since the presidential decree in 1985 to establish a rhino conservation programme after a massive poaching crisis, Kenya has become a major player in Africa with the third largest black rhino population after South Africa and Namibia. Kenya has over 540 animals and the population is gradually growing. This has been the result of dedicated effort from wildlife department employees, private landholders, communities, county councils and their local and international partners. This effort must continue as the numbers remain relatively low and the species remains critically endangered. Kenya also holds a population of 280 southern white rhino, which not only contributes to the conservation of this species globally but also and perhaps more importantly, serves as a possible reservoir of white rhino for Northern Africa, given the likely extinction of the northern subspecies, with only three or four animals surviving in Garamba, Democratic Republic of Congo.

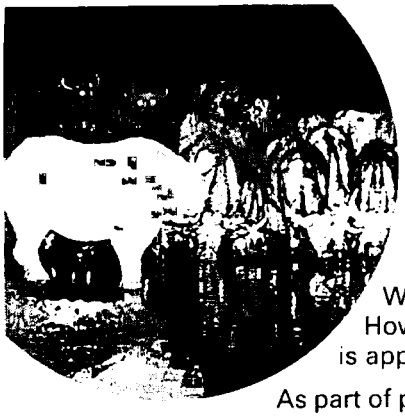
None of this can be done without money, and KWS is taking steps towards self-sustainability in this regard. Meanwhile Kenya thanks donors for their continued support in recurrent and capital expenditures when revenues and Government allocations were low. Currently we are pleased to say that there is increased allocation of funds by the Government to wildlife conservation and there are a number of new efforts/initiatives by KWS to increase revenue. The current KWS budget of Ksh. 4.04 billion represents a doubling of the previous budget. The Government is increasing its support and has promised to improve budget allocations to KWS. Our vision is to have Ksh. 7 billion budget for KWS by 2010. KWS is also improving the financial base through revising leases with operators. The board has approved new leases. We can confirm there will be continued internal financial support for the core business of rhino conservation. This is important so that Kenya can drive its own agenda not only on rhino conservation but for all wildlife matters. We welcome external support and technical advice but for the rhino to survive in the long run this must be our and the people of Kenya's responsibility. KWS will not shirk this responsibility.

To enhance these successes KWS regularly reviews its policies and activities. In February 2007 a workshop reviewed and developed strategies that are achievable irrespective of socio-political and economic changes. The strategies are now also resilient to internal managerial changes. We strive to achieve management that is science, market and information driven. To this end I am proud to present to you the Third Edition of the Conservation and Management Strategy for the Black Rhino in Kenya, Management Guidelines for the White Rhino in Kenya and a review of the 2001–2005 Conservation and Management Strategy for Black Rhino in Kenya.

The Board of Trustees calls upon the Government of Kenya, donors, conservation partners and all stakeholders to support the implementation of the activities in this document.

Daniel Ndonye

Chairman, KWS Board of Trustees



Preface by the Director of KWS

We are happy that the previous strategy achieved its overall objective. However, in this strategy, the challenge will be to look for innovation that is appropriate to Kenya and the region.

As part of policy review and through comprehensive stakeholder involvement we have completed the 2007–2011 Conservation and Management Strategy for Black Rhino in Kenya. This has taken due consideration of the KWS 2005–2010 strategic plan and earlier strategic plans for the species. The document provides important statements on species management and special Kenyan species for the ongoing wildlife policy review including important contributions to legislation on the status of strictly speaking, exotic species such as the southern white rhino, to which the country is dedicating its scarce wildlife resources.

The KWS management, policies and conservation are on the move and the black rhino is one of the species which is the litmus test of our progress. We need to think big and be bold. The target of 2000 cannot be achieved within fenced areas alone so the remaining extensive range and intact habitat in Tsavo, Meru and the north of Kenya needs to be secured and made ready, over the next 5 years, for the surplus from sanctuaries which have reached carrying capacity. This is being achieved by opening Ngulia Rhino Sanctuary and in our increased target for growth to 6% per annum in the sanctuaries. This entails taking risks but we should not be afraid to do this. Management and conservation of rhino populations in montane forest conservation areas has been very challenging as illegal hunting is still a real threat, and more effort will be directed to resolving problems in these areas in the coming years. Overall progress in the longer term will depend on good science, intensified protection, sustained monitoring and community engagement and learning from previous lessons. In addition, the private, community and county council lands will continue playing their important role in underpinning the national park populations.

Without the very best people to implement the strategy we have little hope of success and to this end KWS is committed to greater capacity development for rhino conservation staff. In addition to ensuring effective field work including rhino monitoring, KWS has also pushed forward the Conservation Area concept where field wardens are required to assume more responsibilities for their areas, and where we encourage a stronger link with field scientists on rhino management. Headquarters staff, including the rhino coordinator, will be required to facilitate, coordinate and advise.

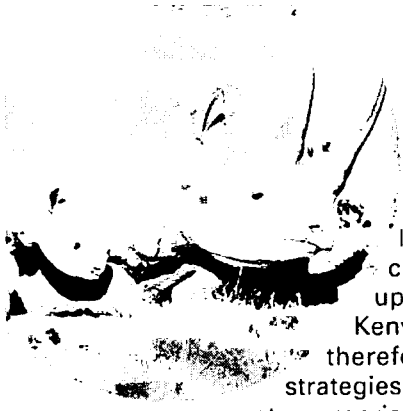
We cannot conserve black rhino alone and regional cooperation is an important factor in the conservation for the eastern subspecies *D. b. michaeli*, both to increase rhino numbers and to spread the risks. Finally we need to also take our place on the international conservation arena and argue our case for the rhino and the region.

We also recognise the role that introduced southern white rhino play in Kenya's wildlife tourism and education and its importance to the conservation of the indigenous eastern black rhino. For this reason, we have developed guidelines to improve the management of this subspecies of white rhino introduced in Kenya.

We thank all our partners, and a special thanks to the Conservation Programmes of the Zoological Society of London who have quietly provided technical support to rhino conservation over the last 20 years and who together with KWS Species Department facilitated the rhino stakeholders' workshop that produced this document.

Please join us in effectively executing our ambitious plans and we can look forward to rhino surviving on our beautiful landscape for another century and beyond.

Julius K. Kipng'etich
Director, KWS



Executive Summary

Increasing changes in the operating environment, and emerging new challenges in rhino conservation and management, require continued updating of strategic approaches to ensure sustainable growth of the Kenyan black rhino population. KWS recognises this dynamism and has therefore continuously kept its rhino conservation and management strategies under review. The purpose of this strategic document is to ensure the most appropriate strategic approach to management, decision making and resource utilization continues to be made by KWS. It is crafted to be resilient to evolving socio-political and economic changes or internal managerial changes.

The process of developing this document included a review of the 2001–2005 Conservation and Management Strategy for the Black Rhino in Kenya (Annex 6), a Stakeholders' Workshop, which reviewed/developed the vision, goals, strategic objectives and indicators and the development of an initial set of site-specific actions by rhino conservation area managers. Compilation and synthesis of the outputs from the Stakeholders' Workshop and rhino conservation area managers were then undertaken. Once completed, this draft document was then circulated to stakeholders and IUCN SSC AfRSG for comments and further input. The draft document was then presented to the Rhino Executive Committee for scrutiny prior to its ratification by the KWS Board of Trustees.

During the next few years, Kenya will move into a new phase of conservation of black rhino. This Third Edition of the 5 year Conservation and Management Strategy for Black Rhino in Kenya retains the vision of conserving *in situ* at least 2000 black rhinos as outlined in the 1993 and 2001 conservation strategies and management plans. It however, includes revised goals and strategic objectives and emphasises the 2007–2011 strategy period as the turning point to significantly increasing black rhino numbers (Figure 1). The target of 2000 black rhinos cannot be achieved within fenced areas alone and therefore the remaining still extensive range and intact habitat in Tsavo, Meru and the northern Kenya needs to be secured and availed over the next 5 years, enabling the planned translocation of black rhinos from sanctuaries which have attained ecological and/or social carrying capacities. This should be possible through sound science, effective protection, monitoring and community engagement, and from lessons learnt in earlier attempts to do this in Tsavo East National Park. Towards this goal, the KWS Board in 2006 approved the implementation of an Intensive Protection Zone (IPZ) in Tsavo West National Park, where some black rhinos will be translocated in 2007. Land held by individuals, local communities and authorities will continue to play an important role as breeding reservoirs to complement the State black rhino conservation areas, particularly the IPZ.

Successful implementation of the strategy will require training of staff at all levels from the ranger cadre through middle-level managers and scientists to senior staff involved in policy making. KWS and other stakeholders are committed to greater capacity building in all aspects of rhino conservation.

Kenyan rhino stakeholders' also recognised the need for management guidelines for the southern white rhino, particularly in relation to the appropriate level of commitment of Kenyan resources to the conservation of this strictly exotic species and matters related to trophy/horn handling, movements and ownership.

Kenya cannot conserve the eastern black rhino alone, and in addition to working closely with Kenyan stakeholders, KWS is in the process of initiating regional cooperation, in order to increase the rhino numbers. This initiative is being explored through a proposal seeking the establishment of an East African Rhino Management Group through a diplomatic process. This East African Rhino Management Group will set protocols for exchanging and managing the eastern black rhino within East Africa.

Kenya is blessed with both animal and geographic diversity making it a key tourism destination in Africa. Not only must management and conservation of rhino consider the whole population but there must also be focus on the different habitats. In this

regard, extra effort will be directed to resolving monitoring challenges of the populations in montane forest areas over the coming years. The Aberdares area has already been divided into management sectors and officers have been put in place. The aim of this sector approach is to ensure very intensive management. The private sector in collaboration with KWS is also contributing through financing the fencing of the protected area.

Poaching is still a real and present threat. To address this continuing and significant challenge, necessary resources including increased manpower and reliable and rapid mobility/patrols are being put in place. Reviewed security strategies are also being implemented. To keep ahead of the increasingly sophisticated poacher, newer technologies will be incorporated in monitoring and surveillance. Monitoring techniques need to be enhanced and appropriate tools for measurement of efforts devised. These will be implemented across all rhino conservation areas. KWS is working on increasing ranger strength up to 4000 in the near future. KWS plans to achieve this by recruiting 400 rangers every 2 years. Taking into account the attrition rate of 100 per year, this will effectively result in a net increase of 100 rangers annually. Tsavo Conservation Area alone is envisaged to have a ranger-strength of 800 personnel. The IPZ in Tsavo West NP will be strengthened with a minimum ranger-strength of 40 trained personnel and will be operational from July 2007. The Meru conservation area shall likewise be strengthened.

Further, to ensure effective field work, KWS has implemented a Conservation Area concept where field wardens are required to assume more responsibility for their areas, greater integration with private and community holdings and a stronger link with field scientists is encouraged in rhino management. Headquarters staff including the KWS Rhino Coordinator will be required to facilitate coordinate and advise. Micro-management by headquarter staff is discouraged.

Figure 1: Plan-at-a-glance - structure of the 2007-2011 Black Rhino Conservation and Management Strategy.

STRATEGY FOR CONSERVATION AND MANAGEMENT OF THE BLACK RHINO

Plate 1: *Diceros bicornis michaeli* showing the slender curved horn and distinctive skin ridges that gives the eastern subspecies a corrugated appearance on its sides. © Renaud Fulconis

DECLARATION

The stakeholders attending the workshop in which this strategy was formulated agreed on the following declaration.

Recognising the achievements of all of those dedicated to the effective conservation of Kenya's black rhinos;

And realising that a sustained strategic and cooperative approach to conservation and management of this species is necessary for continued success;

We, the participants at the Stakeholders' Workshop to revise the Conservation and Management Strategy for the Black Rhino in Kenya;

Unanimously commit ourselves to working together with local communities and other stakeholders to achieve effective rhino conservation in Kenya, and to implement this strategy to achieve the overall goal over the next 5 years, namely that:

A minimum growth rate of 6% per annum is maintained in established sanctuaries. A minimum population of 150 rhinos is achieved in free-ranging areas. A growing population of a minimum of 20 rhinos in one montane forest area is realised. Total black rhino numbers will reach 700 rhinos by 2011, working towards attaining the vision of 2000 rhinos as a minimal viable metapopulation. We will achieve these targets using conservation management approaches that are biologically and socio-economically sustainable and politically acceptable, while ensuring secure habitat for black rhinos.

1 INTRODUCTION

1.1 STATUS OF THE BLACK RHINO

Black rhino (*Diceros bicornis)* suffered a catastrophic decline across Africa in the 1970s and 1980s, both in numbers and in the extent of its range. Numbers plummeted from an estimated 65,000 in 1970 to fewer than 2,500 by 1992. The decline in the eastern black rhino (*D. b. michaeli*) (Plate 1) in East Africa was particularly severe (Western & Sindiyo, 1972, Western, 1982; Gakahu, 1993), where the very large National Parks and Reserves such as Tsavo National Park (NP) and the Selous Game Reserve (GR) each used to hold perhaps twice as many black rhino as currently exist in the world. The black rhino dropped in numbers in Kenya from an estimated 20,000 in 1970 to under 400 animals by 1990 (Figure 2). Illegal demand for rhino horn resulting in poaching was, and continues to be, the major threat. All remaining subspecies of black rhino are listed in Appendix I of the Convention on International Trade in Endangered Species and Wild Fauna and Flora (CITES)[1]. The black rhino is also listed as *Critically Endangered* in the *IUCN Red List of Threatened Species.*

Over the last 20 years in particular, considerable money and resources have been expended in several African countries aimed at saving the black rhino from extinction. As a result, the declining trend has reversed and numbers are slowly increasing (Figure 2).

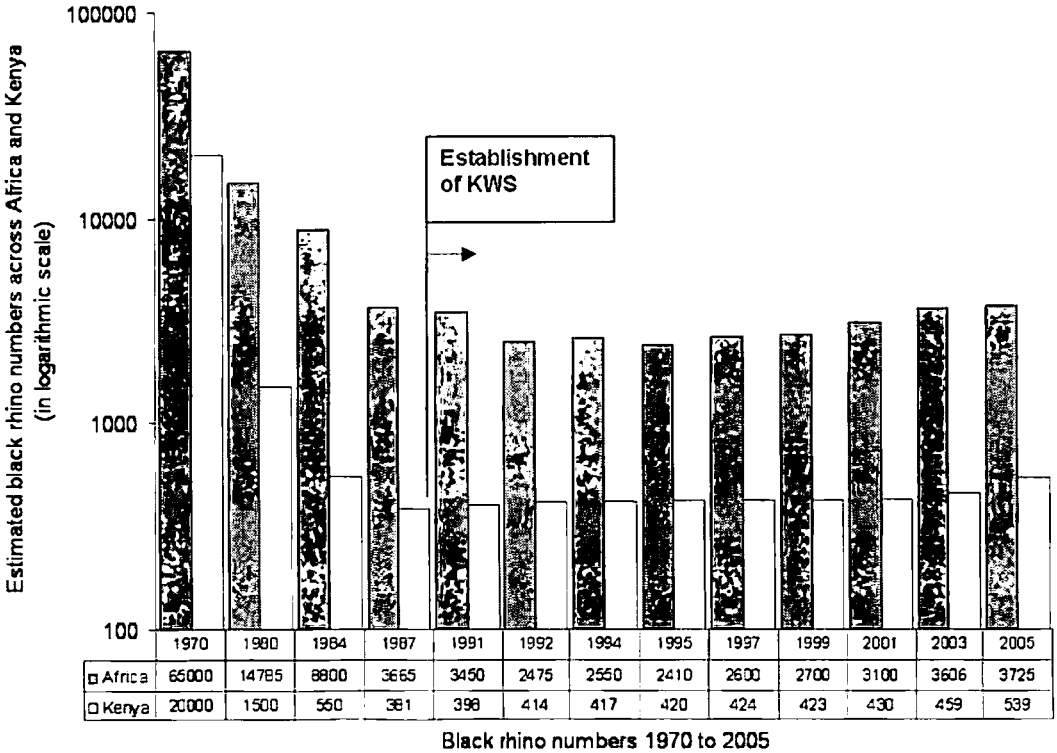


Figure 2: Black rhino trend across Africa and in Kenya from 1970–2005 on a logarithmic scale, showing the sharp decline and slow recovery. Numbers in boxes along the x-axis are black rhino population sizes in Africa and Kenya.

[1] CITES prohibits international commercial trade in endangered species.

It was eventually recognised that the only hope for protecting the remaining black rhinos in Kenya laid in concentrating security for rhino within smaller areas having intensive protection. Resources, such as manpower, funds, ammunition and vehicles, had previously been spread too thinly over large areas to yield any meaningful benefit (see also Leader-Williams, 1992; Leader-Williams *et al.* (unpubl.). Since 1984, an active conservation programme devoted to the recovery of Kenya's black rhino populations has been pursued. Conservation policy has been centred on the development of specially protected areas or sanctuaries. Within these relatively small areas, many of which are completely enclosed by specially designed and monitored electric fences, a large proportion of the country's black rhino have been protected from poaching and have slowly increased in numbers. Rhino sanctuaries were initially stocked mostly with unprotected rhino, typically isolated and vulnerable animals living in areas outside of National Parks or Reserves. As numbers increased, surplus rhino from overstocked sanctuaries have supplemented populations in under-stocked sanctuaries and been used to establish new rhino conservation areas.

Several new ring-fenced rhino sanctuaries were established under the Kenya Rhino Project, including Lake Nakuru NP, Ngulia Rhino Sanctuary (RS) in Tsavo West NP, Ngare Sergoi RS in Lewa Ranch (now a wildlife conservancy with the fenced sanctuary removed) and Sweetwaters Rhino Reserve (RR) (now Ol Pejeta Wildlife Conservancy [WC]). The latter two sanctuaries were developed through fruitful cooperation between the Wildlife Conservation and Management Department (WCMD, now known as KWS), private land owners and various conservation NGOs. In addition, other areas were upgraded to rhino sanctuary status with the construction of some fencing and improved anti-poaching and surveillance (e.g. Nairobi NP, the Salient section of Aberdares NP). In 2004, the fully fenced Mugie RS was created with a founder population of 20 rhinos from Lake Nakuru NP and Nairobi NP. In 2006 a founder population of 21 black rhinos was also reintroduced to a fenced enclosure within Meru NP; the park had lost all its rhinos in the 1980s. The sanctuary policy has been relatively successful as an emergency measure to firstly protect black rhinos and second to allow successful breeding (Anon., 1993; Anon., 2003).

While sanctuaries have been developed and stocked, other important unfenced black rhino populations (e.g. Masai Mara National Reserve [NR]) were provided with improved rhino surveillance *in situ* (Anon., 1993; Anon., 2003). Forty-eight black rhinos were also reintroduced into Tsavo East NP during the 1990s. However, there has been some poaching of rhinos and their protection has been difficult due to the large areas over which they range relative to limited manpower and resources. A map of the present distribution of the black rhino in Kenya is shown in Figure 3.

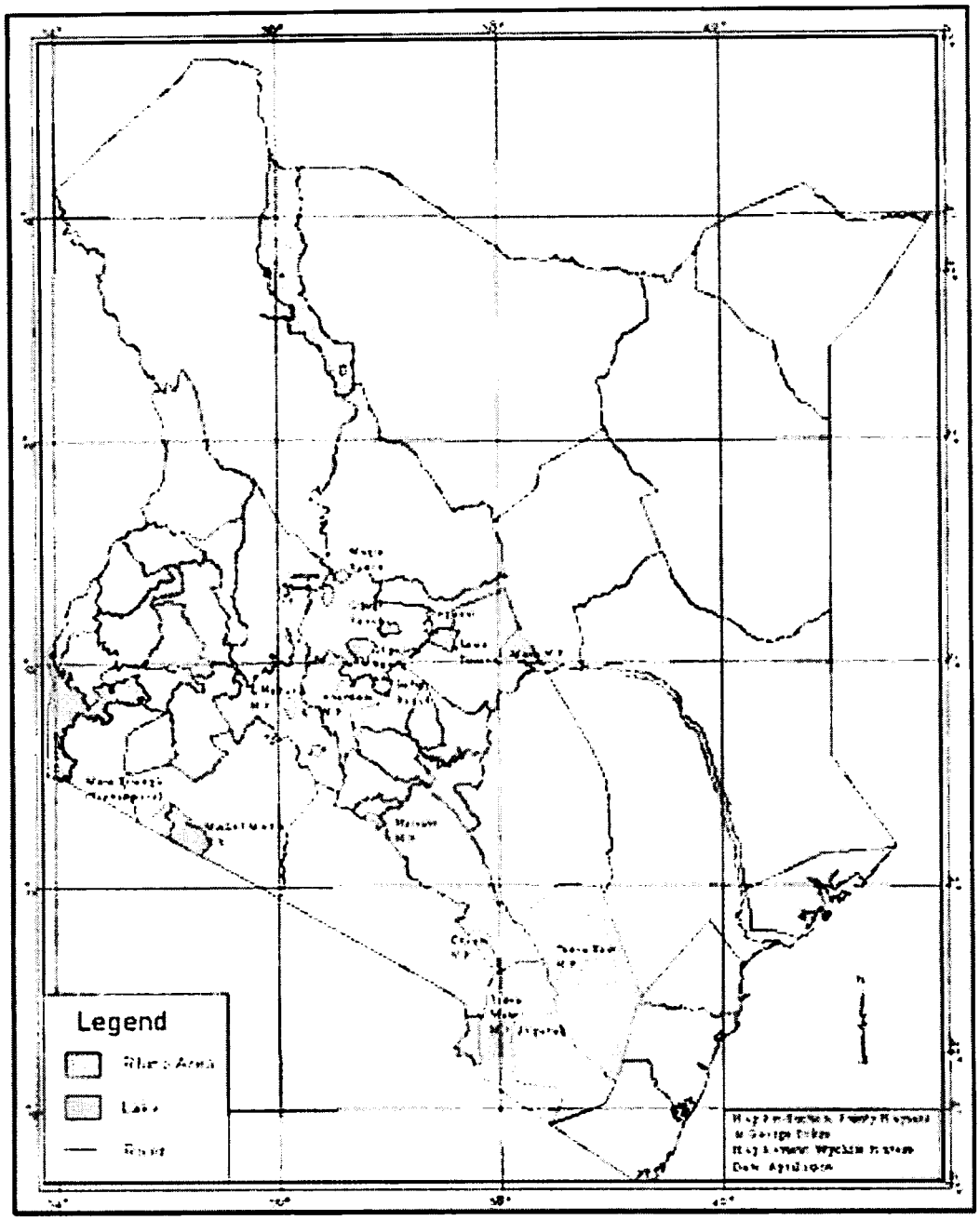


Figure 3: Locations of black rhino conservation areas in Kenya, 2006.

Kenya holds the only substantial AfRSG key rated wild populations of *D. b. michaeli*. The only other significant numbers of this subspecies are found in northern Tanzania, and as an introduced and subsequently translocated population in South Africa. At the end 2005, there were 638 eastern black rhino *in situ* in Africa and *approximately* 170 *ex situ*. Kenya held 539 of these (~85% of the wild population), distributed in 16 conservation areas. They are mostly found within sanctuaries and free-ranging on different land tenure systems (Figure 4). Tanzania has 57 eastern black rhino, mainly in free-ranging populations in unfenced protected areas and a few in one sanctuary. Rwanda has one *D. b. michaeli* in one protected area. South Africa has 41 *D. b. michaeli* of predominantly Kenyan origin on private property. The remainder of the species are held in zoological collections worldwide. Kenya is therefore the stronghold

of the eastern black rhino (Figure 5). Kenya has four IUCN categorised *Key 2* populations (Lake Nakuru NP, Nairobi NP, Tsavo West NP-Ngulia Sanctuary, Solio GR) and seven *Important 1* populations (Lewa WC, Masai Mara NR, Ol Jogi GR, Ol Pejeta WC, Tsavo East NP, Mugie RS, Chyulu Hills NP) (AfRSG, 2006). Tanzania has an *Important 1* and an *Important 4* population and South Africa has one *Important 1* population. Thus Kenya conserves all remaining *Key* populations of this species and 70% of the important populations.

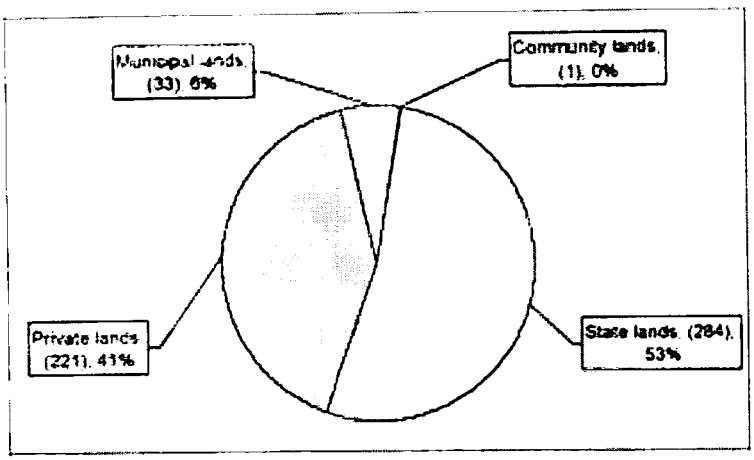


Figure 4: Distribution of *D. b. michaeli* on different land tenure systems in Kenya at the end of 2005.

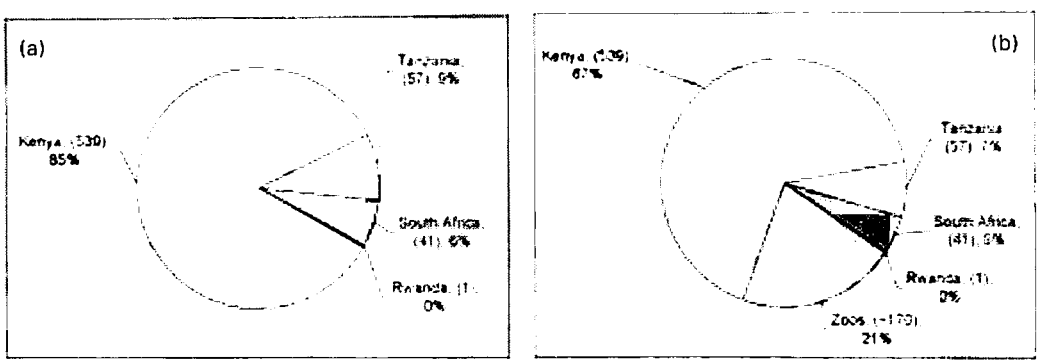


Figure 5: The distributions of (a) *D. b. michaeli in situ* and (b) in both *in situ* and *ex situ* at the end of 2005.

1.2 LEGISLATION AND POLICIES TOWARDS RHINO CONSERVATION

Changes in the administration of the wildlife sector in Kenya and in the status of rhino have resulted in the adoption of different policies and structures to oversee management of rhino in Kenya (Figure 6). Policies before 1970 centred on land clearance for human settlement through problem animal control, protection in National Parks/Reserves and legal hunting of rhino. During the 1970s through the late 1980s, the management of wildlife in Kenya deteriorated and poaching reached a crisis level. To reverse this trend, the Government enacted the Wildlife Conservation and Management (Amendment) Act (CAP 376 No. 16, 1989, Republic of Kenya), which created the KWS. A new policy framework was formulated that emphasised protection of rhino through creation of specially protected and fenced areas (sanctuaries). Under the wildlife legislation, black rhino remain the property of the State irrespective of the land tenure system in which they are found.

The recent policy guidelines for conserving rhino were formulated in 2000 and designed to guide enhanced growth rates through biological management whilst maintaining protection of the black rhino populations. These guidelines were built upon earlier rhino conservation and management policy guidelines of 1979, 1983, 1985 and 1993, during which time rhino numbers stabilised and then gradually increased.

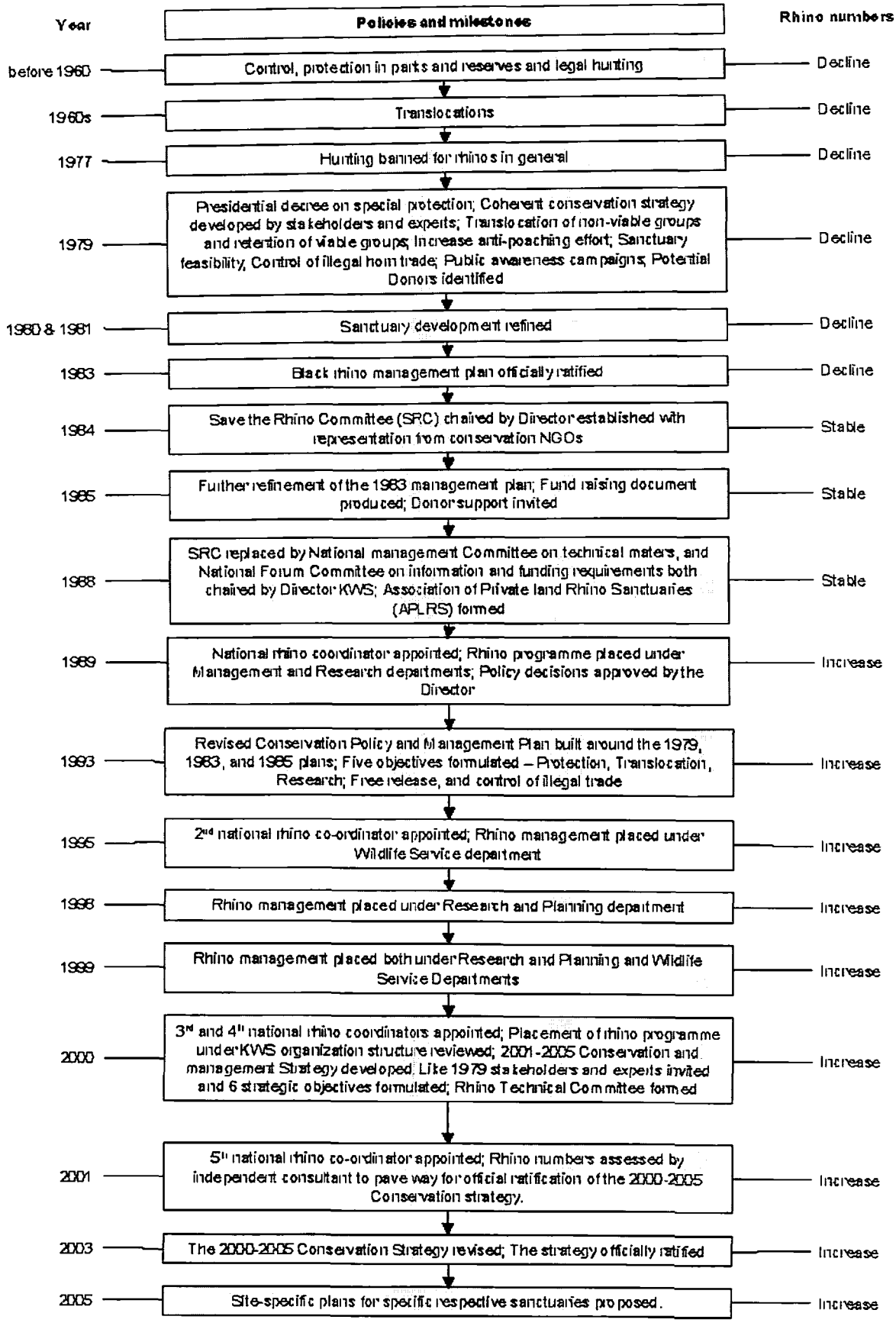
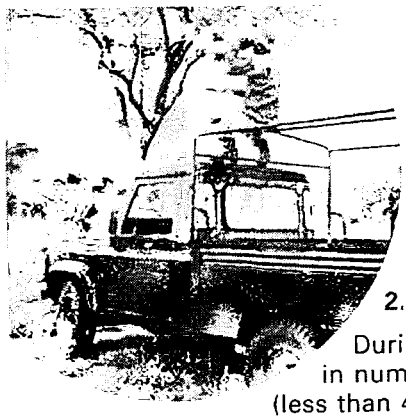


Figure 6: Summary of the policies and milestones in black rhino conservation in Kenya (1960-2005).



2 THE REVISED STRATEGIC DOCUMENT

2.1 FORMULATION PROCESS OF THIS STRATEGIC DOCUMENT

During the period 1993–2005, the imperative was to facilitate rapid growth in numbers of the black rhino population from their critically low numbers (less than 400) towards a vision of achieving a genetically viable population of 2000 individuals. Two strategic plans[2] were implemented over this period. The main thrust of the policy of the 1993 Conservation Strategy and Management Plan for Black Rhino was to protect the remaining black rhinos and enhance their growth through active management. Thus the period between 1993 and 2000 was primarily one of consolidation of non-breeding and non-viable breeding groups (outlier rhinos), protecting existing animals in designated sanctuaries, as well as undertaking some translocations to set up new sanctuaries and complete the stocking of other areas, with a view to also enhancing breeding through removals in some over-stocked key donor populations such as Solio GR. Efforts to halt the illegal trade in all rhino products were also vigorously supported. This 1993 Strategy laid important foundations for a second conservation strategy which was developed in 2000. The 2001–2005 Conservation and Management Strategy for the Black Rhino in Kenya placed increased emphasis on biological management and continued protection of the populations for rapid growth. By 2005, these efforts yielded a population of 539 animals.

Following the expiry of this strategy, it was imperative to review and update it to provide guidance to rhino conservation and management for the following 5 years. In addition there was an opportunity for its alignment with the new KWS Strategic Plan (2005–2010). The formulation of this strategy involved a four-stage process as follows:

1. Review of the 2001–2005 Conservation and Management Strategy for the Black Rhino in Kenya (attached as Annex 6) and preparation for a stakeholder workshop.
2. A Stakeholders' Workshop to review/develop new vision, goals, objectives and indicators.
3. Formulation of site-specific actions by rhino area managers.
4. Collation and synthesis of the outputs from the Stakeholders' Workshop and area managers into a revised Conservation and Management Strategy for the Black Rhino in Kenya (2007–2011).

2.1.1 Results of the formulation process of this Strategy

In the 2001–2005 strategic plan the target of 500 rhinos was set and subsequently achieved. However, despite this overall success there is still room for improvement. Although support was attained it was not sustained and coordination remained challenging. Protection was adequate in most areas except in Tsavo East NP, Aberdares NP and Solio GR, and a standardised monitoring system was implemented but not fully maintained. Biological management was effected with good results except in montane forest populations. Unfortunately, recognised community threats and concerns were not adequately addressed. Recent improvements in decision making led to significant progress in resolving over-stocking and removing elephant competitors in Ngulia RS and this gave optimism for addressing other challenges in the future, such as establishing secure habitat for surplus rhinos.

[2] 1. Conservation Strategy and Management Plan for the Black Rhinoceros *(Diceros bicornis)* in Kenya, 1993.
2. Conservation ad Management Strategy for the Black Rhino *(Diceros bicornis michaeli)* in Kenya (2001-2005).

The stakeholders undertook a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis of the 2001–2005 strategic objectives (see Annex 3). The main areas/issues raised and agreed by both the strategy review process and SWOT analysis were as follows:

1. **Effective metapopulation management:** Populations need to be more strongly linked through translocations and controlled exchange of breeding individuals to form a genetically and demographically viable metapopulation.

2. **Harvesting for maximum productivity:** All rhino populations in enclosed reserves need to be managed at 75% of the ecological carrying capacity (ECC) of each area or alternatively a Set Percentage Harvesting needs to be applied as appropriate to maintain high growth rates.

3. **Minimum founder population:** Enclosed black rhino populations should ideally be established with a minimum founder population of **twenty** unrelated rhinos in an area with a maximum productivity carrying capacity of at least 50 black rhinos.

4. **Annual work-plans:** The overall strategy (principles, goals, objectives, activities and intended outputs) must serve as the framework for preparation and implementation of annual work plans. These also need be used to review progress of the strategy on an annual basis.

5. **Effective coordination:** The implementation of this strategy must be undertaken in accordance with the specified coordination mechanisms and expected outputs with measurable indicators. All rhino conservation areas must be members of at least one of the rhino conservation and management committees or associations (Annex 2). Rhino Conservation Area managers need to assume overall management responsibility of their rhino populations. The rhino coordinator's role, in accordance with the 2005–2010 KWS Strategic Plan, should be to advise, coordinate and facilitate.

6. **Biological management:** The increased emphasis on biological management must continue to promote rapid and sustained population growth rates as per the strategic goals, through adaptive management, well within the limits of ECC and social carrying capacities. This must also include the control of alien and invasive plant species. Alien invasive species have the potential to destroy prime rhino habitat and the longer the delay in implementing control mechanism the harder it will be to deal with the problem in the future.

7. **Secure new rhino areas:** The ultimate objective of the long-term strategy is to use the sanctuary populations as a 'breeding bank' of actively managed rhino for the provision of a continuous supply of surplus rhino to restock areas capable of supporting large populations. Priority areas must be selected for initial or further stocking within the next 5 years and conservation of black rhino in the long term, together with the current rhino conservation areas. Setting up new populations within other East African countries needs to be explored when the proposed East Africa Rhino Management Group is established.

8. **Conserving montane forest population**[3]: One of the main objectives of this strategy must be to build a population of at least 20 individuals in at least one montane forest area (Aberdares NP-Salient) so that rhinos are conserved in their full range of habitats (montane forest/lowland[4] savannah; tsetse/non-tsetse areas).

9. **Rhino translocations:** Translocation must be carried out according to the scientifically determined conservation requirements for metapopulations. Translocation of animals from non-tsetse fly infested areas to tsetse areas where trypanosomosis infection is a risk needs to be guided by veterinary science with appropriate preventive measures taken including reducing stress, optimal nutrition after release and reducing the level of infection challenge in the immediate post-translocation period. Translocation of rhino into populations considered indigenous (currently Masai Mara NR and Chyulu Hills NP) must be guided by genetic science.

10. **Monitoring data quality:** The quality of monitoring data needs to be improved/maintained at high standards through the use of up-to-date Master Rhino-ID files for data quality control and Kenyan Rhino Information Management System for reporting and management. At least 60% of the animals in fenced sanctuaries should be distinctly identified by any trained observer through different body features including ear-notching. National black rhino status report must be produced every 2 years.

11. **Rhino security:** Security of the rhino population needs to be strengthened through an increase and maintenance of ranger force levels to (at least) minimum required levels, implementation of dedicated monitoring and security systems in specific areas, informed patrol deployments based on analysis of patrol logs and sightings of rhinos and signs of illegal activity, improving rhino sighting intervals to minimum levels and legislative reforms to further protect rhinos.

12. **Capacity building:** Ranger training programmes needs to be institutionalised so that it is sustainable. Security and population monitoring standards and techniques need to be further strengthened through skills development and motivation of those involved.

13. **Sustained funding and support:** A sustainable-funding strategy centred on the Government of Kenya (GoK) and KWS support should be put in place to ensure the implementation of this conservation and management strategy for the next 5 years and beyond. Individual Rhino Conservation Areas should also be encouraged to source funding where required.

14. **Community engagement:** More emphasis needs to be placed on engagement and improving relationships with buffer zone or fringe communities through identifying mutual benefits, especially where there is shared resource use around protected areas containing rhino.

15. **Transboundary cooperation:** there needs to be increased cooperation in rhino conservation with Tanzania particularly across Mara-Serengeti and Tsavo-Mkomazi rhino conservation ecosystems.

[3] *A rhino population inhabiting mountainous habitats such as Aberdares or Mt. Kenya National Parks. There is the absence of potentially pathogenic endoparasites and their vectors; mainly trypanosome and their carrier the tsetse fly (Glossina spp.) in this population which puts them at risk when exposed to these parasites after translocation to lowland areas.*

[4] Rhino inhabited environment other than montane forest areas and has the presence of potentially pathogenic endoparasites and their vectors; mainly trypanosome and their carrier the tsetse fly *(Glossina spp.)*

Based on the results of this analysis, the overall goals and six strategic objectives were revised. Strategic objectives of Coordination and Support were merged. The other four objectives of Biological Management, Protection, Monitoring for Management and Capacity were retained with specific amendments, while a new objective on Community was formulated. Specific indicators of success for each of these six objectives were developed. The desired actions to achieve the successes will be site-specific and initial set of actions are provided in Annex 1. These will be further developed within site-specific work-plans.

This revised 2007–2011 strategy aims to resolve coordination concerns, site specific challenges and maintain capacity and standards set in monitoring and biological management. More emphasis is to be placed on buffer zone or neighbourhood communities, implementing systems that are socio-economically sustainable and politically acceptable. Therefore, securing the whole environment of the rhino and ensuring that the gains are more consistent and sustained across all conservation areas will be achieved through the set of strategic objectives with associated indicators, actions and responsibilities.

2.2 STRUCTURE OF THIS STRATEGIC DOCUMENT

The logical structure of this revised strategy can be seen from the "Plan-at-a-glance" (Figure 1) in the executive summary.

The **Vision** sets out the desired situation to be achieved in the future. As such, it represents a long-term goal.

This revised Third Edition of the Kenyan black rhino conservation plan has a 5-year horizon, and sets measurable short-term **Conservation Goals**. By achieving these short-term goals, progress towards achieving the long-term vision will have been made. The plan identifies a number of **Key Strategic Objectives** namely: biological management, monitoring for management, protection, coordination and support, capacity and community which are deemed critical to meeting the Conservation Goals. Achieving **all** of these *Key Strategic Objectives* is essential to successfully meeting the short-term *Conservation Goals* and hence to progress towards achieving the long-term *Vision.*

In the body of the Plan, a brief **Rationale** section is given for each *Key Strategic Objective* explaining why the particular *Key Objective* is important to meeting the *Conservation goals.*

The plan also lists a number of **Indicators** that can be used to assess progress towards meeting the Conservation Goals and each particular *Key Strategic Objective.* Ideally these *Indicators* should be SMART (i.e. Specific, Measurable, Achievable, Realistic and Time-based).

The plan also lists site-specific **Actions** that are needed in order to meet the **strategic objective.** These lists are not exhaustive, but outline the key ones that need to be implemented to be successful. The *strategies/actions* sections in the plan are deliberately not too detailed, as these will be developed further in site-specific work plans and users can refer to these more detailed documents. The work plans should be updated on an annual basis. The plan also contains a number of **Annexes.**

Figure 6 helps explain the plan to senior decision-makers. The chart shows how all the *Key Strategic Objectives* feed in to meeting the *Conservation Goals,* and that meeting these *Goals* will make a contribution towards the long-term *Vision.* Progress towards meeting the overall goals can be assessed using the indicators of success set out in this strategy. Thus the process moves from actions to meeting the strategic objectives and the overall goals, thereby progressing towards the vision. In the body of the plan, each *Key strategic objective* (together with its associated *rationale* and *indicators of success)* is dealt with in a separate section.

3 STRATEGY VISION, GOALS AND OBJECTIVES

3.1 STRATEGIC VISION

There will be a metapopulation in Kenya of 2000 of the East African race/subspecies of the black rhino (*Diceros bicornis michaeli*) managed in natural habitat in the long term.

Two thousand animals are recognised as being the minimum number, or metapopulation, of black rhino necessary to ensure the long-term survival of this species in Kenya (du Toit *et al.*, 1987). The sooner this target can be achieved, the greater the reduction in loss of overall genetic diversity.

3.2 OVERALL GOALS

The overall goals are the immediate concern of this strategy and are achievable within the time frame and with the resources available. In turn, by meeting these overall goals, significant progress will be made towards achieving the long-term vision of this strategy.

A minimum growth rate of 6% per annum in established sanctuaries is maintained. A minimum population of 150 rhinos is achieved in free-ranging areas. A population of a minimum of 20 rhinos is realised in one montane forest area. Total black rhino numbers reach 700 rhinos by 2011 towards the vision of 2000 rhinos as a minimum viable metapopulation.

3.2.1 Rationale and Considerations

The previous 5-year strategy emphasised biological management and this has been largely successful. National rhino growth rates have been increasing and since 2003 rhino numbers have increased above the previous target of 5% per annum, largely as a result of increases in rhino numbers in well-established sanctuaries. A number of major issues, however, remain to be addressed.

1. **De-stocking, regular harvesting and creation of secure new areas**

   Although two new sanctuaries, each with a viable population of 20 founders, were created under the last strategy, many of the established sanctuaries remain overstocked. Secure new areas are urgently required, and this strategy places greater emphasis with set targets in restocking former free-ranging areas which can support large populations. This will require sufficient resources and well-trained man-power. The creation of Intensive Protection Zone(s) will be an important strategic development.

2. **Viable montane forest population**

   The only montane forest black rhino population (Aberdares NP-Salient) has been declining in recent years. The Aberdares population is important for the region and needs to be built up into one showing growth. Understanding and dealing with factors that have contributed to the decline, and translocation of additional rhinos into the area to boost numbers, will be required.

3. **Managing existing sanctuary habitats**

   All existing sanctuaries (and new ones) will need to be managed so that they remain productive in the future and emphasis is required on research and effective management programmes for invasive species control, reducing competing browsers where there is a need and regular harvesting of rhinos to maintain numbers at MPCC.

The objective of this strategy is to use these sanctuary populations as a 'breeding bank' of actively managed rhino for the provision of a continuous supply of surplus rhino to restock former range areas, including those capable of supporting large populations. The target annual growth rate of 6% in established sanctuaries is based on growth rates above 6% achieved over the last 5 year (2002-2006) period (an average of 9.43% over the whole period was achieved (Table 1)).

Sanctuary	Rhino numbers over the strategy time period				
	2002	2003	2004	2005	2006
Lake Nakuru NP	64	70	61	69	63
Nairobi NP	70	75	78	73	66
Lewa WC	33	37	41	45	53
Ol Jogi GR	20	22	25	25	26
Ol Pejeta WC	36	37	39	45	49
Solio GR	49	49	45	72	94
Translocated out + growth			21	31	54
Total	**272**	**290**	**310**	**360**	**405**
Annual growth rate	5.02	6.62	6.90	16.13	12.50

Table 1: Annual growth rates of established sanctuaries over the period 2002–2006.

A growth rate higher than 6% can be maintained so long as these populations are kept at productive levels (MPCC) and their habitats are well-managed. Developing sanctuaries should also be able to achieve minimum target growth rates of 5%, this being only just over half of r_{max} (9%) and should be attainable. Once these populations are well established and productively managed, they should also be able to achieve higher rates of increase (6–9%). Given an expanding population with a young age structure in good habitat, a population can temporarily achieve even higher rates of growth (10%+) as seen in Table 1.

The growth rates of developing free-ranging populations have been set at realistic lower levels of between 2 to 3% per annum in the short to medium term. The Aberdares NP-Salient montane forest population growth is also set at this level. Figure 7 shows the projected numbers in the different management model areas based on the minimum target growth rates.

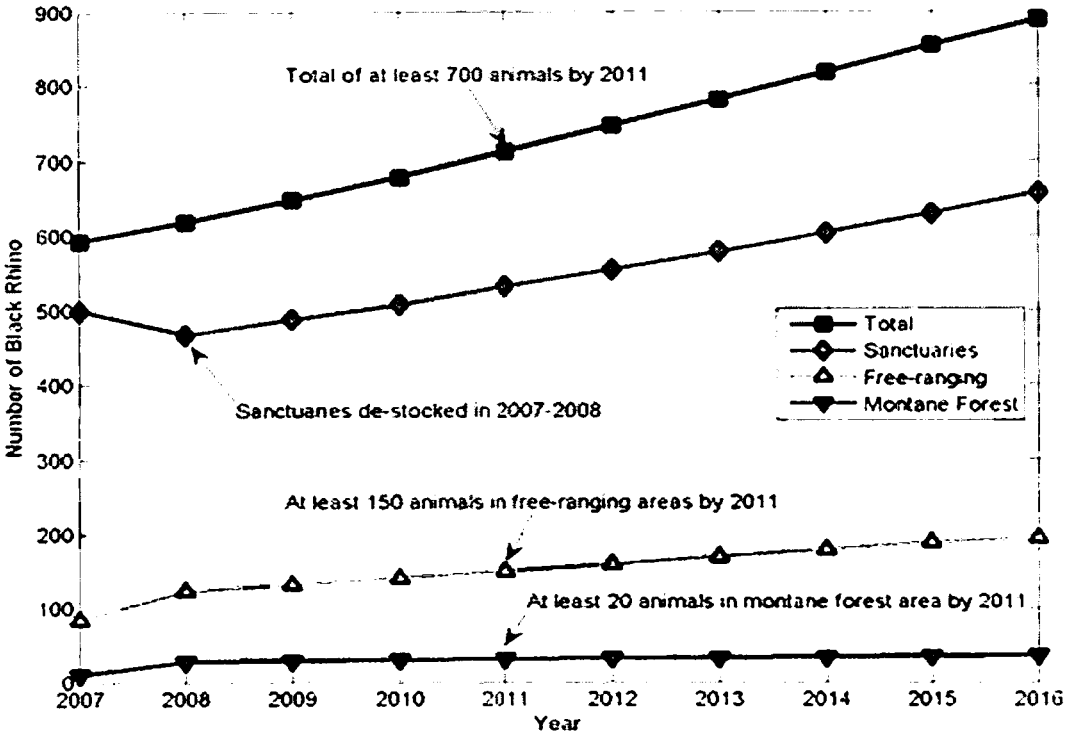


Figure 7: Projected population growth for 10 year period (2007 to 2016) for sanctuary, free-ranging, montane forest and national population.

Established sanctuaries de-stocked in 2007–2008 and then regularly harvested. Expected growth rates:

Sanctuaries [established]: Nairobi NP, Lake Nakuru NP, Ngulia RS, Solio GR, Lewa WC, Ol Pejeta WC, Ol Jogi GR - 6%

Sanctuaries [developing]: Meru NP, Mugie RS, Ol Pejeta WC Ext., Laikipia Nature Conservancy (NC) - 5%

Free-ranging: Tsavo East NP, Masai Mara NR, Chyulu Hills NP - 2%

Free-ranging: Tsavo West IPZ - 3%

Montane forest: Aberdares NP-Salient - 3%.

By 2016, numbers of black rhino in Kenya should reach close to 900 animals. This assumes that additional sanctuary(ies)/extensions are created alongside the restocking of free-ranging areas.

There are, however, some challenges and obstacles that may hinder achievement of the strategy's goals. These include, but are not limited to:

i. Finding suitable new areas for re-establishment of rhino populations where law enforcement efforts can be concentrated enough to be effective.

ii. Security and monitoring in the unfenced release areas.

iii. Delays in de-stocking over-stocked sanctuaries; proper harvesting strategy not implemented.

iv. Delays in reducing densities of competing browsers in areas where there is a demonstrated need (Lake Nakuru NP).

v. Lack of implementation of a invasive species control programme based on a proper long-term management strategy/plan (Lake Nakuru NP, Nairobi NP, Aberdares NP, Laikipia NC, Meru NP),

vi. Inadequate monitoring systems resulting in poor quality monitoring data from areas with difficult terrain (Aberdares, Tsavo East, Tsavo West and Chyulu Hills NPs).

vii. Lack of effective management recovery strategy for Aberdares NP-Salient.

viii. Coordination framework not effectively being implemented.

ix. Funding for operational costs not sustained by KWS and GoK.

x. Increasing number of clean animals in sanctuaries.

xi. Ranger staff strength below minimum required levels in some areas.

xii. Insufficient number of trained staff in some areas; high turnover of trained staff.

xiii. Deployments of patrols not based on wildlife monitoring and patrol log data.

xiv. Lack of proper community based wildlife management programs that provide incentives for protecting rhino and their habitat.

xv. Wildlife act not updated with stronger penalties for wildlife crime.

This revised strategy aims at overcoming these challenges by setting out clear strategic objectives, indicators, actions, targets and responsibilities. The emphasis placed on biological management in the previous strategy continues to play a major role in this strategy.

3.2.2 Indicators of Success

1. A minimum growth rate of 6% per annum is maintained in all well-established sanctuaries.
2. An average growth rate of at least 5% is achieved in recently created sanctuaries.
3. A minimum population of 150 rhinos is reached in free-ranging areas by 2011.
4. A growing population with a minimum of 20 rhinos is established in one montane forest area by 2011.
5. By the end of 2011, there will be >25% increase in the number of rhinos residing in their natural habitats, from numbers recorded in 2006.

3.3 STRATEGIC OBJECTIVES

3.3.1 Coordination and Support

Implement an effective coordination framework to support stakeholders and enhance decision making and action.

Rationale and Considerations

The conservation and management of wildlife in Kenya is vested in KWS, a parastatal organisation under the Ministry of Environment, Natural Resources and Wildlife. It is charged with the implementation of the Wildlife Policy (1975) and the Wildlife Act (revised in 1989) and general planning and management of wildlife in Kenya. KWS will therefore be responsible for the implementation and monitoring of this 2007-2011 black rhino conservation and management strategy. However, to achieve the overall goals of this strategy, all stakeholders (private sector, NGO partners, donors, relevant county councils and communities) will be required to work together under a well coordinated and managed system.

The rhino programme is a core activity of the species department of KWS and therefore receives a reasonable share of revenues and GoK support. In addition, since about 50% of the rhinos are on private and county council lands, a significant contribution comes from the finances of these sectors too. Communities are beginning to also take an interest in rhino conservation and may provide significant opportunities in the future. Donor agencies are urged to continue to support the strategic aims of the rhino programme, especially for activities outside of the normal budgeting of KWS, and for emergencies. Technical support and research are encouraged from both national and international agencies to enhance the outputs of the programme.

The aim of the coordination framework will be to ensure the following:

i. Implementation of the strategy through the setting of site-specific actions, targets and responsibilities for all conservation area managers.

ii. Decision-making and execution at a local level through local Area Management Committees (AMC), national policy and executive decisions through a Rhino Technical Committee (RTC) and the Rhino Executive Committee (REC), coordinated by the KWS species programme office (Senior Scientist-Rhino Conservation/Rhino Coordinator).

iii. The REC has representation from KWS and the private/community land rhino custodians to ensure country-wide implementation and adherence to security, biological and conservation strategies.

iv. Association of Private Land Rhino Sanctuaries (APLRS) reinforced with mandatory membership for all holders of rhinos on private land through an executive order from the Ministry and formal audit of rhino conservation standards.

v. A Rhino Consultative Committee (RCC) provides a forum for information sharing.

vi. Adequate funding and support from GoK through KWS and from NGOs and donor agencies to all rhino conservation areas.

The members of REC and RTC will be appointed by the Director KWS and the RCC by REC. The members of the AMC will be appointed by the Rhino Conservation Manager/Senior Warden. The APLRS will function according to its constitution (see Annex 2).

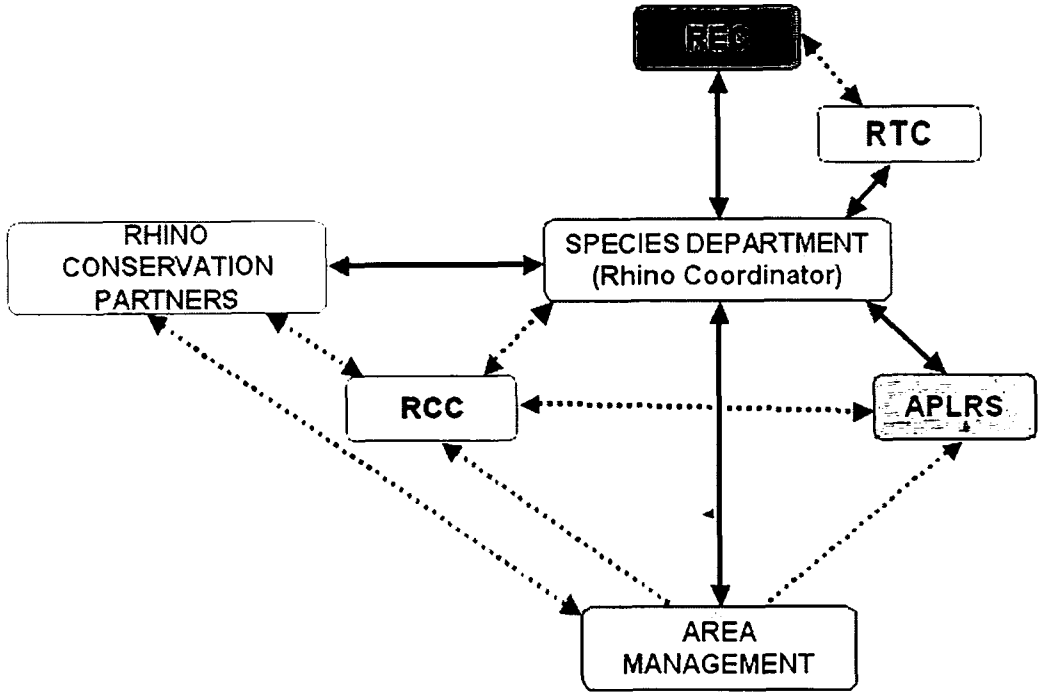


Figure 8: The sustained framework for decisicn making and information flow through area level committees to national committees with involvement of all rhino stakeholders. Solid arrows signify line management and dotted lines signify information flow.

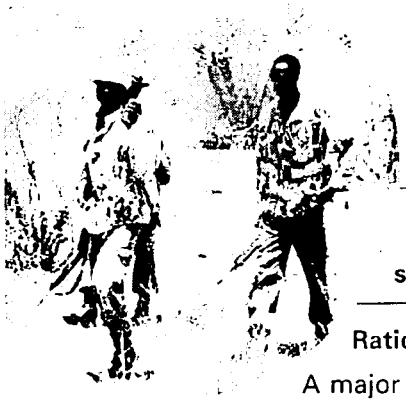
The weaknesses of the earlier coordination and management of the rhino programme will be addressed through the new structure which will have clear decision-making lines and give responsibility to the Area Managers for implementation of agreed actions releasing the Senior Scientist Rhino Conservation to carry out the coordination and liaison role.

Support for the implementation of last strategy was satisfactory. There was continued financial support from regular donors to both KWS and the private, community and county council sectors, notably from African Wildlife Foundation; Chester Zoo (North of England Zoological Society); UK Government (Darwin Initiative), Eden Wildlife Trust; Frankfurt Zoological Society; Frefrei Geboren; IUCN SSC AfRSG, Rhino Ark; Rhino Rescue; Save the Rhino International; United States Agency for International Development; US Fish and Wildlife Service; WWF; Zoo D'Amnevile; Zoological Society of London and other individual supporters. Substantial technical support was also provided through the UK Government's Darwin Initiative project. Continuing support will be essential to capitalise on the gains made, but this needs to be strictly controlled to ensure focused support to the strategic objectives for black rhino and less loose attachment of funds to generic conservation of rhino. The African Rhino Specialist Group continued to provide help and guidance over the period and Kenyan interests are now well represented on this IUCN voluntary body of the Species Survival Commission.

Indicators of success

1. The structures and reporting lines for all components of the National Rhino Programme (Figure 8) is implemented by end of 2007.
2. Each coordination committee is operating from clear Terms of Reference (Annex 2).
3. The RTC, responsible for making technical decisions and for advising the REC through the coordinating office, is established by August 2007 and meets on a regular basis to deal with issues raised by the AMC, RCC and the APLRS through the KWS Rhino Programme Coordinator and to review park and national status reports.

4. The REC, responsible for overall implementation of the National Black Rhino Conservation and Management Strategy, continues to meet at least twice a year, ideally within 2 weeks after the second quarter of the RTC meeting, to act on recommendations made by the RTC.
5. The APLRS is represented in the REC.
6. The decisions of the REC and RTC are documented and implemented.
7. All private and community rhino conservation areas join the APLRS to improve coordination.
8. The RCC is represented by the Deputy Director Wildlife and Community Service-KWS, Head of Species Conservation and Management-KWS, Senior Scientist-Rhino, Chair and Secretary of the APLRS, Senior Wardens of the KWS rhino conservation areas, representative of the Masai Mara ecosystem and the KWS Head of Veterinary Services, and meets at least three times a year to exchange information.
9. Area Management Committees are established and meets regularly to discuss and make decisions on rhino issues in their areas.
10. Standardised Terms of References (ToRs) are implemented for all KWS Rhino Wardens.
11. The Mara–Loita ecosystem is managed as one rhino conservation area through the area committee.
12. Trans-boundary meetings involving all concerned stakeholders are held at least once a year with Tanzanian authorities.
13. Mutual support and coordination between KWS Veterinary Services and the Species Conservation and Management Department are enhanced to improve veterinary response times.
14. A range of revenue generating opportunities and support (e.g. Nairobi Ride with Rhino, rhino postcards) is explored.
15. The production of Rhino Conservation Area status reports is coordinated and the synthesised national rhino status report is communicated back to each rhino conservation area by the KWS Rhino Programme Office.
16. There is an increasing number of coverage/publications of rhino activities through media and journals.
17. Rhino stakeholder participation in rhino conservation issues is increased and management conflicts are minimised.
18. The proportion of funds spent on planned actions, as opposed to unplanned actions, increases.
19. The funding required for all essential activities for the year is clearly identified and available from the start of the financial year.
20. There is an increasing allocation of funds from KWS/central Government for rhino conservation.
21. There is a clear KWS plan of action for achieving long-term financial sustainability for rhino conservation.
22. There are black rhino translocation procedures/manual available to veterinary and capture unit of KWS.
23. Rhino sanctuary management guidelines are produced and all KWS, private and community land rhino sanctuaries adhere to it.



3.3.2 Protection

Minimise rhino poaching, encroachment and illegal extraction of natural resources through effective law enforcement measures and stakeholder collaboration.

Rationale and Considerations

A major aim of this strategy is to address the main threats to the security of rhino. Poaching of black rhino remains a serious threat to their conservation in Kenya. KWS, the Private Land Rhino Sanctuaries and County Councils will continue to maintain or re-establish an effective deterrence through sufficient presence in, or support to, rhino conservation areas and through promotion of and implementation of improved legislation, which is likely to emerge from the pending amendments to the Wildlife Act and new Wildlife Policy. KWS will improve capacity in all areas through routine induction of new rangers and focused training of KWS and private sector armed and non-armed personnel in all aspects of rhino security. A community engagement process will be initiated to improve the image of KWS armed wing as a positive force for law and order, helping to ensure a secure environment for both communities and animals. This will enable establishment of more extensive and reliable informer networks and flow of intelligence on poaching, illegal activities and trade. Patrol units will be equipped with adequate monitoring and surveillance systems to provide information for research and monitoring in order to undertake more effective and efficient coverage of their areas. Legislation to support tighter controls over all rhino horn and trade issues will be promulgated.

Failure in adequately preventing illegal activities relating to black rhino over recent years related to poor community relations and weak informer networks, ease of access to rhino, inadequate management and monitoring (including of non-armed poaching methods), lenient sentencing, and in some cases lack of manpower and equipment. All these elements will be addressed in this strategy.

There are also concerns about increasing illegal encroachment and extraction of material resources. The aim of this strategy is to secure the whole environment of the rhino and allow maximal growth in order to achieve the vision of this strategy. This can be achieved through transforming community antagonism to goodwill through effective engagement, in addition to adequate deterrence and penalties, investigation of poachers and other illegal activities with their effective prosecution. As most horn from East Africa is illegally traded through various routes to Yemen in the Arabian Peninsula, disincentives to this trade in particular are needed.

Indicators of success

<u>Wildlife crime investigation, prosecution and sentencing</u>

1. Relevant stakeholder/personnel are trained by trained instructors in detecting and identifying rhino horn and its derivatives.
2. A "Scene of Wildlife Crime Investigation" basic training module is setup for all KWS rangers and officers at Manyani Field Training School and for private and local county reserves at KWS Naivasha Training Institute.
3. A prosecution unit is established in KWS.
4. KWS laboratory is revitalised and staff are trained in providing improved diagnostics for endangered species and to support forensic investigations (national and international).
5. Formal structures for cross-border liaison are established alongside the Lusaka Task Force Agreement.
6. Operation of the KWS dog unit is expanded to include training in searching for wildlife products especially rhino horn and to cover all entry/exit points in the country.

7. The existing Wildlife Act is revised with substantial minimum penalties specified for the illegal hunting of rhinos and the illegal possession of, or trade in rhino products.
8. There is increased proportion of convictions resulting from informers and intelligence.
9. Intelligence informer incentives are introduced in areas where they do not exist.
10. Relevant processed intelligence information is disseminated to relevant groups in a timely manner.
11. A comprehensive cross-border intelligence information sharing and collaborative programme is developed / enhanced.

Law enforcement & anti-poaching

12. Mortalities of rhino per year due to poaching are kept below 1% in both fenced and unfenced rhino conservation areas.
13. Ranger staffing in each area is kept at least to the level specified in the site management plan or by the Rhino Programme Office.
14. Intelligence networks are enhanced by at least 25% particularly in high-risk areas like the Tsavo and Greater Meru Conservation Area.
15. Dedicated patrol-based surveillance and security systems are developed and implemented in difficult or unfenced areas (Tsavo East NP, Aberdares NP, Tsavo West IPZ).
16. A complimentary intelligence arm within KWS is developed / enhanced.
17. Accurate information on patrol movements, poaching / illegal signs and sightings of threatened species is consistently being collected by field rangers and operational maps are continuously being updated to guide deployment of patrols and to assess security effectiveness in all rhino conservation areas.
18. Regular de-snaring operations are carried out in all risk areas.
19. Security staff in private sanctuaries is strongly encouraged to join the Kenya Police Reserve (KPR) to enhance powers and legal status.
20. Local poaching methods are documented and effective control mechanisms are developed in all rhino conservation areas.
21. Adequate resources, as detailed in site annual plans, are provided to all rhino anti-poaching and security teams.
22. Awareness programmes on wildlife crime and law are undertaken in the surrounding communities.
23. Anti-poaching staff are actively involved in local community engagement activities.
24. Formal structures to facilitate joint operations in neighbouring States are developed.
25. Cross border cooperation on law enforcement matters with neighbouring State authorities is enhanced with increasing number of cases.
26. Joint law enforcement operations between KWS and other Kenya Government security forces are undertaken in increasing number.
27. Security staff in KWS parks are trained in the use of GPS and senior security staff are trained in GIS.

Rhino horn stockpile and trophy management

28. An effective, secure and standardised management system is developed and implemented for rhino trophies and stockpiles.

3.3.3 Monitoring for Management

Maintain a standardised monitoring system to provide information for efficient protection, metapopulation management and programme implementation.

Rationale and Considerations

Monitoring is done primarily to protect rhinos and to make informed biological decision-making. Successful biological management requires good quality information on the status and performance in terms of population dynamics (number of rhinos and population growth rates), reproductive health (age at first calving, average inter-calving intervals, ratio of numbers of calves less than 3.5 years per adult female) and health condition as well as factors that may be affecting performance (e.g. density of browsers, rainfall etc) of each population. Further, monitoring of movement patterns, changes in social behaviour, home-range sizes and habitat carrying capacities are also important. All these variables help managers assess whether rhino densities in a park need to be reduced to increase population performances and hence contribute to meeting the overall goal.

Without good quality monitoring data, it is not possible to make informed biological management decisions and or properly assess progress towards meeting the overall goal. The monitoring of populations should be undertaken using recognised, individual identification techniques. To be able to compare data over time and between parks within and outside of Kenya, it is essential that the AfRSG recommended standardised age and condition classes continue to be used in all rhino conservation areas. Law enforcement efforts must be monitored to provide information to help guide patrol deployment.

A successful monitoring system was implemented during the previous strategy period in most areas and any remaining weaknesses will be addressed through:

i. Improved coordination and control over rhino monitoring through enforcement of standards,

ii. Investment in and encouragement of more cost efficient and routine ear notching operations where appropriate,

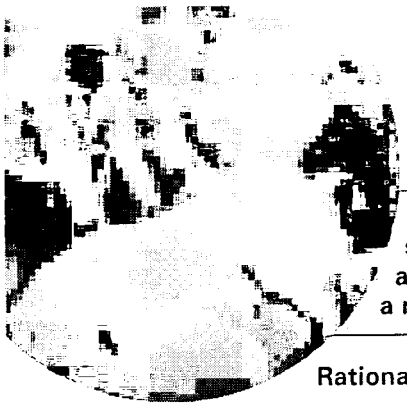
iii. Sustained capacity through routine training of new ranger staff in rhino monitoring and focus training of KWS and private sector staff involved in rhino monitoring and re-equipping as necessary,

iv. Efficient processing and storage of data, analysis and regular feedback to decision-makers and rhino monitoring staff.

Indicators of Success

1. A GIS based rhino information management system is operational in all rhino conservation areas and is being effectively used for site patrol-based monitoring, reporting (monthly management reports and annual status reports) and decision-making.
2. The AfRSG Rhino Monitoring Training Programme is being used in all rhino conservation areas and summaries of training provided in monthly and annual status reports.
3. Basic wildlife monitoring training programme is implemented at Manyani Field Training School and Kenya Wildlife Service Training Institute (KWSTI).
4. There are at least two rhino monitoring instructors, at least 70% of rhino monitors are accredited and at least 50% have a minimum of 2 years monitoring experience in all rhino conservation areas.
5. Master rhino ID files are kept up-to-date and are effectively being used for checking sighting data in all rhino conservation areas.

6. Mara - Serengeti cross border monitoring and reporting system is put in place with common Master ID files.
7. Monitoring guidelines for clean rhinos (animals with no established identification marks) are in place and are used consistently in all rhino conservation areas.
8. Indirect sighting methods are effectively being used in all relevant rhino conservation areas (Chyulu Hills NP, Aberdares NP and Laikipia NC) and information summarised in monthly and annual status reports.
9. A complete (from data capture to analysis) night water-hole photographic survey programme is continued in Ngulia RS and enhanced/implemented in other relevant areas (Chyulu Hills NP, Aberdares NP).
10. Individual rhino sighting frequency in forest areas is at least once a month, and in open areas is at least twice a month.
11. At least 60% of all independent animals are identifiable by all trained observers in each rhino conservation area.
12. The Bayesian Mark Recapture "RHINO" software is used in appropriate areas to estimate total population sizes (including clean animals and animals that are still to be seen) and results reported in annual status reports.
13. Population estimates with confidence categories are produced at least every 2 years to feed into AfRSG continental status reports for every rhino conservation area.
14. Information on GPS logged patrol movements, illegal activities and direct/indirect rhino sightings are actively being used to deploy patrols.
15. Mechanisms for detecting carcasses per unit patrol effort are put in place in all State rhino conservation areas and difficult non-State rhino conservation areas (Mara National Reserve, Laikipia NC).
16. Competing browser species (elephant, buffalo, giraffe, kudu etc.) are monitored in fenced areas and population estimates obtained and included in annual status reports.
17. Predator species are monitored in fenced areas and population estimates obtained and included in annual status reports.
18. Knowledge on the Aberdares population status, movements and seasonal distribution is significantly improved by setting up a programme of viable montane forest surveys by expert rhino monitors and by enhancing the knowledge and experience of selected monitoring personnel.
19. The IUCN post-release monitoring guidelines are in use for all future translocations.
20. Rhino monitoring equipment needs are evaluated and documented for each area and equipment replacement strategy produced and implemented.



3.3.4 Biological Management

Maintain a minimum growth rate of 6% p.a. in well established sanctuaries; reach a minimum of 150 in free ranging populations and a minimum of 20 in montane forest conservation areas to attain a metapopulation of 700 animals by 2011.

Rationale and Considerations

The principles set for biological management in earlier strategies, to breed rhinos as rapidly as possible to maintain genetic diversity and provide resilience against threats are maintained for black rhino. This growth can be achieved through proper stocking rates and minimising competition from other browsing species. Ecological and/or social overstocking of conservation areas can impact negatively on rhino reproductive performance and long-term carrying capacity. The aim is to harvest from healthy reproducing populations to maintain numbers below carrying capacity and focus on establishing, once again, free-ranging populations. Rhinos also need to be conserved in their full range of habitat and the only montane forest population in the Aberdares NP-Salient may no longer be viable. This is an important population and emphasis will be placed on tackling the underlying problems and building up the population.

A number of activities will be undertaken to achieve the strategic objective. With proper coordination by the species department of KWS, decision making by REC and local AMC and advice from the RTC, biological management actions by Conservation Area Managers, with support from the KWS Biodiversity Research and Monitoring Division and relevant experts, will include, but not be limited to, management of stocking rates of rhino and other browsers through appropriate interventions, determination of ecological carrying capacities where necessary, habitat management including alien plant control and improved fire regime (where relevant), assessment of genetic and demographic problems, rhino body condition and health and intra-specific competition assessment.

Indicators of success

The following indicators will demonstrate progress towards the achievement of the strategic objective:

1. At least one growing rhino population in montane forest habitats (Aberdares NP-Salient), with at least 20 confirmed animals within 5 years (2011) and 30 confirmed individuals within 10 years (2016).
2. Free ranging rhino populations increased to a confirmed total of not less than 150 animals within 5 years (2011).
3. Complimentary unfenced population created with an Intensive Protection Zone (IPZ) in Tsavo West NP.
4. Detailed park/reserve annual status reports (based on standardised templates for fenced and unfenced rhino conservation areas) are produced at least every 2 years by January and national status report with interpreted results are synthesised and provided to RTC, RMC and managers of State and private rhino conservation areas by March (to feed into AfRSG continental status reports).
5. Decision log maintained according to results of the RTC reviews of national status reports (both recommended and those that are carried out as shown by management records).
6. Age and sex ratios and breeding records are reviewed at least every 2 years (through the status reports) and appropriate actions taken to avoid genetic and demographic problems, especially in small populations.
7. Review, at least every 2 years (through the status reports), information on intra-specific competition (deaths, injuries and changes in home ranges) and take appropriate actions.

8. Identification/assessment of potential extension or new rhino conservation areas are continuing in line with the existing Kenyan Rhino Programme guidelines.

9. Translocations of rhinos and post-release monitoring are continuing in line with the existing Kenyan Rhino Programme guidelines and the IUCN rhino translocation guidelines.

10. Rhino stocking levels in all fenced areas are maintained below the estimated ecological carrying capacities and ideally at 75% of the carrying capacities [Maximum Productivity Carrying Capacity (MPCC)][5] or a set % harvesting strategy is being applied.

11. Populations over 75% of the ECC are reduced to the MPCC level as quickly as possible and then a set percentage (%) harvesting strategy is implemented.

12. The densities of competing browsers are reduced, without significant delay, where there is a demonstrated need[6].

13. The densities of predators are reduced where there is a demonstrated need.

14. Guidelines for mineral supplementation are developed and implemented in areas with known mineral deficiencies such as Lake Nakuru and Aberdares NPs.

15. There is adequate supply of water throughout the year (permanent natural or artificial water points) in all suitable sections of fenced rhino conservation areas[7].

16. Appropriate diagnostic tools are implemented for common diseases associated with livestock (e.g. bovine tuberculosis, anthrax, lumpy jaw) and stress related illness associated with parasitic or piroplasmic infections.

17. Disease monitoring protocols are produced and implemented.

18. Management control programmes for alien invasive plants (*Lantana camara, Tarchonanthus camphoratus* and *Solanum incanum*) are developed and implemented immediately in all affected rhino conservation areas.

19. Further habitat assessment studies are undertaken in all relevant rhino conservation areas to improve understanding of vegetation dynamics across rainfall gradients, soil fertility and browsing pressures (rhino and competing browsers) and carrying capacity estimates and ECC model revised.

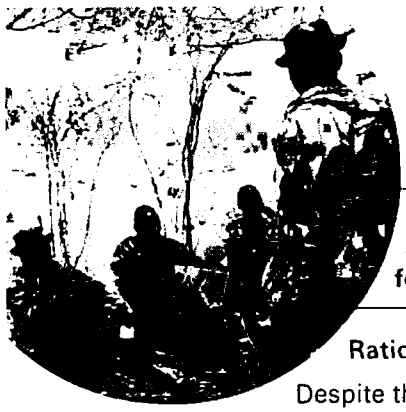
20. Standardised assessments of habitats and ECC estimation are undertaken on a periodic basis; not routinely to monitor year-to-year changes in resources, but rather once every few years to account for long-term vegetation changes.

21. Timely veterinary response is provided by setting-up at least one accredited veterinary officer in each major conservation area (Mountain, Northern, Tsavo and Central Rift).

[5] Given the population dynamics of large long-lived animals, it has been estimated that the Maximum Sustained Yield or Maximum Productivity Carrying Capacity (MPCC) for rhinos should be around 75% of Ecological Carrying Capacity (ECC), and therefore that densities should not be allowed to increase above this threshold level.

[6] Competing browsers such as elephants and buffalos pose a potential threat on the food reserve and habitat for the rhinos. Considerable effort is therefore needed to monitor and manage herbivore population to the advantage of black rhino as a priority species for conservation and breeding in rhino conservation areas.

[7] Certain sections of an area may have low-density use by rhinos due to lack of permanent water points; providing water could spread rhinos out and increase overall carrying capacity.



3.3.5 Capacity

Sustain an effective and efficient resource capacity through collaborative efforts between all stakeholders with a strategic focus on under-performing areas.

Rationale and Considerations

Despite the considerable progress made in recovery of the black rhino in Kenya the population is still vulnerable to any major poaching event and gradual erosion of and encroachment into its habitat. Therefore security and biological management remain critical but community issues are now becoming more important for the coming strategic plan.

In-service training programmes for security staff will no longer be *ad hoc* and will be incorporated into the basic ranger training modules at the KWS Manyani College. This will ensure all ranger staff are at least aware of the key elements of rhino conservation, security and monitoring, and institutionalise skill implementation and retention. This will address the sustainability issue, which the evaluation of the 2001–2005 strategy highlighted as a problem.

KWS and other Rhino Conservation Area managers and staff will need modular training to refresh and deal with up-coming technical improvements in biological monitoring, intervention, research, veterinary science and community engagement. This will be taken care of at KWS Training Institute. Current staffing levels and training needs will be reviewed especially in under-performing areas. The capacity to tackle community issues also needs to be built up in all rhino conservation areas. Personal development review needs to be introduced and merit reward systems sustained across all sectors.

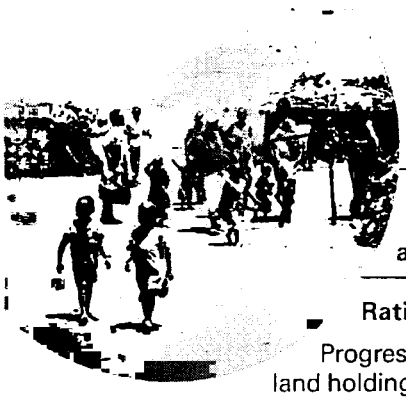
Security, biological management and intervention require regular replacement of vehicles and equipment to maintain a high standard and it is envisaged that capital will be put towards this during the strategy period.

Overall cost/benefit for the various components of the strategic plan will be assessed and measures taken to increase efficiency and prioritisation to ensure key targets are reached. Earlier ideas of developing an endowment fund for black rhino conservation were not investigated in the 2001–2005 strategy period. This principle remains sound and in line with the KWS 2005–2010 Strategic Plan which advocates for a KWS (Endowment) Fund as was envisaged in Sec.5A of the Wildlife (Conservation and Wildlife) (Amendment) Act. Once it is set up the funding of specific black rhino conservation activities can be designated to this fund. This would provide predictability in budgeting and the implementation of planned activities and address the long-term financial sustainability issue.

Indicators of success

1. Annual work plan for implementation is developed at the start of the financial year by each rhino conservation area and by the KWS Rhino Programme Office (including finances, actions and responsibilities) and reviewed by the RTC.
2. Review of the previous year's plan is included in the status report of each rhino conservation area and summarised in the national status report every 2 years.
3. Capacity for proposal writing is developed within the Rhino Programme.
4. Clear guidelines, procedures and tools for specific field activities are provided and effectively being used.
5. Necessary rhino monitoring equipment is provided and their inventory documented in all rhino conservation areas.
6. Specific staff training is institutionalised at Manyani Field Training School and Naivasha Training Institute.

7. KWS rhino programme personnel are bonded for a period of at least 3 years after completion of formal training and there is a significant reduction in the turnover of trained staff in the National Rhino Programme.
8. Terms of references for rhino monitoring staff are developed.
9. Minimum staffing levels for each rhino area are defined and staffing level in each rhino conservation area are increased to and maintained at least at this level.
10. At least 75% of the ranger force is available for daily monitoring and surveillance in the rhino conservation areas.
11. There is effective representation / input into the on-going wildlife policy review.
12. All potential rhino conservation areas for extension or for establishment over the next 5 years are identified by the end of 2007.
13. Effective engagement with communities surrounding rhino conservation areas is increasingly undertaken to improve land use practices.
14. The special case of endangered species like black rhino are articulated and adopted by local communities surrounding rhino range and sanctuaries with targeting of unresponsive communities for special action.
15. An endowment fund for black rhino is established in line with KWS endowment fund.
16. There is temporary attachment or exchange programme between rhino conservation areas for the rhino monitoring rangers.



3.3.6 Community

Promote establishment of community rhino conservation through partnerships and the generation of goodwill from neighbourhoods to all rhino conservation areas.

Rationale and Considerations

Progress in community relations around State protected land and some private land holdings has been poor with increasingly unsupportive communities with respect to rhino and conservation in general. Creating goodwill is therefore critical to reduce this increasing risk to the well being of rhinos and their habitats from community indifference to, or active participation in, poaching, encroachment and illegal extraction of ecosystem goods.

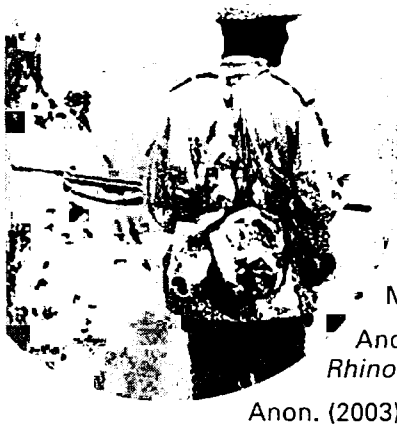
One approach is to encourage, where there are few competing land use issues, Community Conservation Areas with rhino as a driver for ecotourism. In this case, white rhino are preferred due to the ease of management and lower conservation status but black rhino might be appropriate once the land is secured.

Where this is not possible and around many NPs with rhino, local partnerships need to be forged and support given by KWS to addressing misconceptions, resource partitioning, access rights and more holistic and poverty-sensitive approaches to land management. Finally, the economics and benefits of rhino to the local and wider Kenya community are not scientifically determined and this needs to be done through appropriate research. Means to promote the link between rhino and community development should be explored.

The needs of the community should be better defined to identify the key elements which are relevant to rhino specifically. Most projects to date are addressing the wider issues of water, transport, infrastructure, schools and clinics which inevitably focus on the better off elements in society. The communities surviving on subsistence means with few alternative livelihood options and more likely to be involved in poaching should be targeted and opportunities explored for increasing awareness and undertaking mutually beneficial activities between rhino conservation areas and communities.

Indicators of success

1. Eco-tourism development is promoted/encouraged through visits by civic/community leaders to established community eco-tourism facilities (for example, Il Ngwesi Community Ranch [CR]).
2. Potential community rhino conservation areas are identified by the end of 2008.
3. Community scouts are employed in and around rhino conservation areas.
4. Training of community based animal health workers and livestock owners in basic animal healthcare is undertaken in potential conflict areas.
5. KWS Community and Education Officers are provided further training in public/community engagement approaches.
6. Formal communication forums with adjoining rhino conservation areas are developed/strengthened.
7. An increasing number of opportunities/projects in adjoining communities are identified and implemented to promote positive attitude towards rhino conservation (human wildlife conflict resolution, sustainable livelihood initiatives, communal mixed grazing systems, water provision, education programmes, cash-crops, tree plantations etc.).
8. Mechanisms for linking good-will projects to rhino conservation are identified and implemented.
9. Local community / civic leaders are increasingly invited to rhino events such as translocations and census to promote rhino conservation.
10. Relevant KWS management/department performance targets include community related goals.
11. A standardised method for measuring local community attitude/good-will towards rhino conservation areas is developed and implemented.
12. Effective engagement with communities surrounding rhino conservation areas is increasingly undertaken to improve land use practices.
13. Rhino education and awareness information packs are developed in local languages and provided to relevant stakeholders including communities.



LITERATURE CITED

AfRSG (2006) *Proceedings of the Eighth Meeting of the IUCN African Rhino Specialist Group* Compiled by Brooks, L. Brooks, M. (Ed.). Mlilwane Swaziland.

Anon. (1993) *Conservation Strategy and Management Plan for the Black Rhinoceros (Diceros bicornis) in Kenya.* Nairobi: KWS-Rhino Programme.

Anon. (2003) *Conservation and Management Strategy for the Black Rhino* (Diceros bicornis michaeli) *in Kenya 2000–2005.* pp. ix + 39. Nairobi: Kenya Wildlife Service.

du Toit, R. F., Foose, T. J. and Cumming, D. H. M. (1987) *Proceedings of African Rhino Workshop.* Cincinatti, October 1986. *Pachyderm* 9:1–33.

Gakahu, C. G. (1993) African rhinos: current numbers and distribution. In *International Rhino Conference on Rhinoceros Biology and Conservation.* Ryder, O. A. (Ed.). Zoological Society of San Diego, San Diego.

Leader-Williams, N. (1992) *The World Trade in rhinoceros Horn: A Review.* Cambridge: TRAFFIC International.

Leader-Williams, N., Brett, R. A. & Jenkins, P. (Unpublished report).

Leader-Williams, N., Brett, R. A., Brooks, M., Craig, I., duToit, R. F., Emslie, R., Knight, M. H., Stanley-Price, M. R. & Stockil, O. (1997) A scheme for differentiating and defining the different situations under which live rhinos are conserved. *Pachyderm* 23: 24–28.

Western, D. & Sindiyo, D. M. (1972) The status of the Amboseli rhino population. *East African Wildlife Journal* 10: 43–57.

Western, D. (1982) Patterns of depletion in a Kenya black rhino population and the conservation implications. *Biological Conservation* 24: 147–156.

Annex 1: List of Site-Specific Activities

A1.1 Common activities for all areas

In addition to site-specific activities, the following activities shall be carried out by all rhino conservation areas.

- Daily monitoring and surveillance
- Compiling and sending of monthly reports to RPC at KWS
- Updating and maintaining the *Kifaru* black rhino information and management system
- Updating and maintaining master ID Files
- Production of site-specific annual status reports
- Ensuring at least 60% of the population is identifiable by all members of rhino monitoring team
- Ensuring ranger/staffing level is maintained at least at the minimum required level
- Ensuring adequate monitoring equipment is available and being used by the patrol and monitoring teams
- Site-specific plans with timescales and budgets are developed and reviewed / updated annually
- Patrol log data are being collected, analysed and being used for deployment of patrols
- Half-yearly refresher training courses on rhino monitoring
- Secure rhino horn stockpile management as per the protocols and established systems
- Manage populations at the maximum productivity carrying capacity by translocating surplus rhinos

A1.2 Site-specific Activities

Rhino Conservation Area	Activity/Action	Indicator	Time					Responsibility
			2007	2008	2009	2010	2011	
Aberdares NP (ANP)	Setup a well-designed security and monitoring patrol block system incorporating de-snaring activities	• Established patrol block system by August 2007 • Trained patrol block system staff by August 2007 • Data in *Kifaru* system • Monthly reports						AD-MCA, OC-Rhino ANP
	Translocate rhinos into suitable area to build up numbers after thorough assessment of potential threats has been carried out	• Number of translocated rhinos						H-SCM, RPC, H-VET
	Undertake close monitoring of GPRS transmitter fitted rhinos	• Monthly reports with rhino ranging and movement data						SS-MCA, OC-Rhino ANP
	Undertake systematic intensive survey for rhinos in most suitable rhino areas outside the Salient	• Survey report by March 2008						SW-ANP, SS-MCA, OC-Rhino ANP
	Monitor hyena population based on recent population trends	• Monitoring established by July 2008 • Annual hyena status reports						SS-MCA, SW-ANP
	Implement an indirect monitoring method for rhinos as part of the block patrol system given the difficult terrain based on indirect signs e.g. footprints, middens, browsed plants	• Rhino monitoring protocol based on indirect methods developed by May 2008 • Trained patrol staff by May 2008 • Data in *Kifaru* system starting from May 2008 • Monthly reports						RPC, SW-ANP
	Undertake study based on camera traps for rhino monitoring and surveillance	• Study setup with at least five camera traps placed at strategic points by July 2008 • Report by December 2008						RPC, SW-ANP, RS-Rhino

Rhino Conservation Area	Activity/Action	Indicator	Time					Responsibility
			2007	2008	2009	2010	2011	
	Assess effectiveness of rhino monitoring and surveillance.	• Half-yearly assessment reports submitted to Rhino Programme Office						AD-WPU, AD-MCA
	Enhance community relations and engagement	• Number of meetings held with communities that are rhino security and conservation related						SW-ANP, OC-Rhino ANP, AD-MCA
Chyulu Hills NP (CNP)	Undertake study to determine black rhino numbers, sex structure and level of inbreeding through dung DNA analysis	• Study report with population estimate by October 2008 • Revised site management plan by January 2009						RS-Rhino, Collaborating Institutions
	Implement indirect rhino monitoring method as a complementary method to the direct sighting approach given the difficult terrain	• Indirect rhino monitoring protocol by June 2007 • Indirect sighting data in *Kifaru* starting from 2007 • Monthly monitoring reports						RPC, SW-CNP
	Implement jointly run (KWS, MPT) standardised monitoring and reporting system	• Data in park HQ *Kifaru* system starting from June 2007 • Monthly and annual status reports						SW-CNP, RPC
	Geo-reference critical monitoring areas e.g. pathways, hideouts, water points etc	• Digital map integrated in park HQ *Kifaru* system by March 2008						KWS-GIS Section, SS-TCA
	Implement community education and awareness programme for the park buffer zone community	• Socio-economic survey report by December 2008 • Education and awareness material developed by December 2008 • Monthly reports						SAD-C&WS, SW-CNP
	Negotiate with KARI on land-use options of park adjacent land and agree land use plan in favour of rhino conservation	• Signed MoUs and agreements by December 2007						AD-TCA, SW-CNP, MPT

Rhino Conservation Area	Activity/Action	Indicator	Time					Responsibility
			2007	2008	2009	2010	2011	
	Survey available watering points and assess the need for establishing artificial waterholes to improve rhino sighting	• Water and EIA survey reports by December 2007 • RTC evaluation of reports and benefit/risk of establishing water holes						SS-TCA, KWS-EIAU, Ministry of Water
	Set-up and continue a fire management programme	• Fire management plan by July 2008 • Fire breaks established by July 2009 • Fire management programme started July 2009						SW-CNP, SS-TCA
	Improve road infrastructure by increasing number of monitoring tracks to enhance surveillance	• At least five additional monitoring tracks of length of at least 20 km each over the period 2008–2010						SW-CNP, AD-TCA
	Ensure water catchment area on KARI land which currently serves Mukururo rhino staff is secured and sustained	• Signed MoU between KWS and KARI by November 2007						KWS Director, KARI, AD-TCA
	Re-design monitoring and security strategy to enhance security at the park boundary by end 2007	• New security strategy implemented by December 2007 • Reduction in cases of encroachment into the park as reported in the monthly reports						DDS, AD-WPU
Laikipia NC (LNC)	Consolidate the three separated populations by opening up the bordering fence lines	• Bordering fences opened in stages over 2007–2010 • Monthly reports with rhino monitoring data						LNC
	Improve relations with the neighbouring communities with KWS as a mediator	• Number of meetings held between the conservancy and Pokot, LNC and KWS's District wardens of Baringo, Laikipia and Samburu						LNC, SAD-C&WS
	Implement an indirect monitoring method for rhinos given the difficult terrain	• Rhino monitoring protocol based on indirect methods by March 2008						RPC, LNC

Rhino Conservation Area	Activity/Action	Indicator	Time					Responsibility
			2007	2008	2009	2010	2011	
		• Data in *Kifaru* system started by April 2008						
	Membership of the APLRS	• Joint meeting between KWS, LNC and APLRS by December 2007 to complete formalities						RPC, APLRS, LNC
	Enhance monitoring by training and supporting field rangers.	• At least two resident accredited rhino instructors by November 2007 • At least 90% trained monitoring staff in rhino monitoring (all 12 modules of the course trained by resident accredited instructors) by January 2008						LNC, RPC
	Ensure *Kifaru* system is fully operational and being used for security and management	• Fully operational *Kifaru* system by September 2007 • At least two trained staff in the use of *Kifaru* by October 2007 • Monthly status reports						RS-Rhino, OC-Rhino LNC
Lake Nakuru NP (LNP)	Conserve the remaining *Euphorbia calindubrum* forest	• Map of extent of *Euphorbia* debarking by March 2008 • Report on all factors accelerating debarking by May 2008 • Fenced forest (at least a representative and viable portion) by July 2008						SS-CRCA, RS-Rhino
	Review black rhino carrying capacity considering the dropping water table	• Refined ECC estimate by 2010						SS-CRCA, RPC
	Implement invasive plant species management and control programme (especially of *Lantana camara* in *Acacia xanthophlea* woodland under storey)	• Strategic workshop on invasive species control by January 2008 • Invasive species management plan by						AD-CRCA, SW-LNP, SS-CRCA, RPC, collaborating institutions

Rhino Conservation Area	Activity/Action	Indicator	Time					Responsibility
			2007	2008	2009	2010	2011	
		February 2008 • Maps of the spread/extent of the different invasive plant species by March 2008 • Funding proposals by April 2008 for control measures • Six-monthly progress reports on control measures						
	Control competing herbivore densities as outlined in Park Management Plan (i.e. keeping competing herbivore species numbers below ECC by translocating animals to re-stock other areas)	• De-stocking of competing herbivores started by September 2007						H-SCM, AD-CRCA, SW-LNP, SS-CRCA
	Continue with mineral supplementation	• Minerals supplemented annually						SW-LNP, SS-CRCA, OC-Rhino LNP
	Rehabilitate fence around the oil-sewage system which poses risk of fatal injuries to wildlife.	• Fence rehabilitated by January 2008						SW-LNP
	Re-locate ranger's housing from Naishi to the park boundary at Nganyoi to improve coordination and administration	• Ranger's housing relocated by June 2008						SW-LNP, OC-Rhino LNP
	Community awareness and education programmes on rhino conservation	• At least two education and awareness programmes carried out each year						AD-ED, Education Officer LNP
	Overhaul the 74km electric fence system which is currently over 20 years old thus very expensive to maintain	• At least 20 km of electric fence overhauled per year starting from 2008						AD-CRCA, SW-LNP
Lewa WC (LWC)	Expand rhino management area from 62,000 to 94,000 acres and initiate joint security & rhino monitoring and management system across the whole area	• Fences between LWC and Borana conservation area removed by October 2009 • LWC, Borana and Il Ngwesi CRs merged and a perimeter fence erected						LWC

Rhino Conservation Area	Activity/Action	Indicator	Time					Responsibility
			2007	2008	2009	2010	2011	
		by 2011						
	Review ecological and social carrying capacity of the expansion into Borana Ranch	• Ecological and social carrying capacity estimate and reports by June 2008						LWC
	Continue security and monitoring collaborative initiatives with Ol Pejeta WC, Il Ngwesi CR, Lekuruki, Shaba, Buffalo Springs and Samburu NRs.	• Security reports • Number of initiatives						DDS, LWC
	KWS accredited veterinary officer at the conservancy to handle rhino (and other wildlife) cases in Northern and Mountain Conservation Areas	• Reports submitted quarterly to RTC						H-VET
Masai Mara NR (MNR)	Undertake study on factors negatively affecting rhino numbers and distribution e.g. fire, disturbance - lodge placement and expansion, tourism, cattle incursion and implement recommendations.	• Scientific report with recommended mitigation strategies by December 2008 • Workshop held to produce site based plan in January 2009						SS-CRCA, RPC, RS-Rhino
	Analyse existing information on mortality trends in relation to predators	• Scientific report by March 2008						SS-CRCA, RS-Rhino, OC-Rhino MNR
	Create a Mara-Serengeti joint monitoring system	• Joint Mara-Serengeti training on rhino monitoring started by March 2008 • A common master ID File established and maintained from May 2008 • Refined population estimate for entire ecosystem by January 2009						H-SCM, RPC, NCC
	Continue joint security patrols between MMNR and Serengeti	• Joint security patrol reports						AD-WPU, SW-MNR
	A dedicated KWS ecologist setup with expertise on species conservation and data analysis	• A species scientist employed by July 2008						DD-BR&M, H-HC

Rhino Conservation Area	Activity/Action	Indicator	Time					Responsibility
			2007	2008	2009	2010	2011	
Meru NP (MNP)	Determine the extent of tsetse and trypanosome infestation through trap surveys	• Design and survey report by December 2007 • Signed research contract with suitable collaborating institution(s) by January 2008 • Half yearly trap survey reports from June 2008						RPC, SW-MNP, SS-MNP, collaborating institution(s)
	Move/expand sanctuary to low tsetse challenge area based on results from the trap surveys and ECC/vegetation survey	• Site assessment report by July 2007 • Sanctuary setup in suitable area/expansion with minimum MPCC of 50 animals by July 2008						REC, RPC and SS-MNP
	Establish and sustain effective tsetse control program in collaboration with TRC	• Number of collaborating institutions • Number of trained KWS personnel in tsetse control • Progress report from January 2008						DD-BR&M
	Initiate community education, awareness and engagement programme	• Community survey report (with identified target groups) by March 2008 • Education and awareness material by June 2008 • Number of engagement activities with community target groups						SAD-C&WS, RPC, SW-MNP
	Expand the road and monitoring network	• Increased roads and tracks by at least 20 km annually over the strategy period						DD-C&WS, AD-ECA, SW-MNP
	Implement invasive plant species management and control programme	• Strategic workshop on invasive species control by January 2008 • Invasive species management plan by February 2008 • Maps of the spread / extent of the different invasive plant species by						AD-ECA, SW-MNP, SS-ECA, RPC, collaborating institutions

Rhino Conservation Area	Activity/Action	Indicator	Time					Responsibility
			2007	2008	2009	2010	2011	
		March 2008 • Funding proposals by April 2008 for control measures • Six-monthly progress reports on control measures						
Mugie RS (MRS)	Determine ecological and social carrying capacity for rhinos	• Habitat assessment report by May 2008 • Ecological and social carrying capacity estimates by June 2008						RS-Rhino, OC-Rhino MRS
	Analyse existing rhino sighting and radio transmitter data and determine patterns in rhino ranging and social organisation since introduction	• Report by November 2007 • Paper submitted to a journal by February 2008						RS-Rhino, OC-Rhino MRS
	Undertake study on elephant / rhino interactions and competition	• Report with recommendations by January 2010						SS-ECA, RS-Rhino, OC-Rhino MRS
Nairobi NP (NNP)	Establish critical sighting periods for rhinos in both forest and in more open areas based on sighting information	• Refined critical sighting interval established by December 2007						RS-Rhino, OC-Rhino NNP
	Upgrade and maintain fence	• At least 20 km of fence upgraded and maintained every year starting from 2008						SW-NNP, Fence manager-KWS HQs
	Initiate rhino education programmes	• At least two education and awareness programmes carried out each year in neighbouring schools and communities						AD-ED, ED Officer NNP
	Monitor and control of invasive alien plant species	• Strategic workshop on invasive species control by January 2008 • Invasive species management plan by February 2008 • Maps of the spread/extent of the						AD-SCA, SW-NNP, SS-NNP, RPC, collaborating institutions

Rhino Conservation Area	Activity/Action	Indicator	Time					Responsibility
			2007	2008	2009	2010	2011	
		different invasive plant species by March 2008 • Funding proposals by April 2008 for control measures • Six-monthly progress reports on control measures						
	Establish rhino camp away from park HQs to enhance monitoring and coordination	• Rhino camp relocated by June 2008						AD-SCA, AD-WPU, SW-NNP, RPC
Ol Jogi GR (OGR)	Establish a viable founder population in expanded Ol Jogi GR and monitor population	• Number of rhinos translocated in the ranch by September 2008						RPC, H-VET, OGR
	Manage rhino and competing browser populations at the estimated ecological and social carrying capacity of the expanded ranch area for rhino biased but reasonably balanced population of other browsers	• Report with ecological and social carrying capacity estimates of rhino and competing browsers by December 2007 • RTC and annual status reports detailing populations numbers and management interventions						OGR, RPC
	Identify training needs and train rhino staff on basic monitoring skills; staff trained	• Training needs assessment report by November 2007 • Number of trained rhino personnel						OGR, RPC
	Explore further expansion of rhino conservation area into the neighbouring community lands	• Assessment report by January 2009						OGR
	Manage migratory corridors through the fence line to prevent rhinos moving out of the reserve	• Reports showing decreasing incidents of rhinos moving out of reserve through the corridors						OGR
	Continue aerial security surveillance for rhino in critical sighting period	• Monthly reports						OGR

Rhino Conservation Area	Activity/Action	Indicator	Time					Responsibility
			2007	2008	2009	2010	2011	
Ol Pejeta WC (OPC)	Monitor and review possible predator (lion)-rhino conflict	• Monitoring sighting data in *Kifaru* system starting from January 2008 • Report on lion-rhino dynamics by March 2008 • Reports on any lion control measures taken						OPC, H-SCM
	Drop fence between the old sanctuary and expanded area and monitor movement of rhinos	• Fence dropped by June 2007 • Annual status reports						OPC
	Undertake and continue post release monitoring of introduced rhinos	• Post release monitoring information in monthly reports • Annual status reports • At least one publication in a peer reviewed journal						OPC, RPC
	Monitor and maintain populations of competing browsers below management levels	• Annual status report containing population estimates and management actions						OPC
	Review/refine ecological carrying capacity of the whole expanded reserve	• Habitat assessment report with refined estimate of ECC by July 2010						OPC
	Ensure all rhino staff are continuously trained in monitoring techniques	• All rhino personnel trained by January 2008						OPC, RPC
Solio GR (SGR)	Establish and maintain *Kifaru* system	• *Kifaru* system established and operational by June 2008 • Monthly reports						RPC
	Initiate habitat monitoring to review ecological carrying capacity of rhino and competing browser species to maintain rhino biased but balanced browser population	• Habitat assessment report with ECC estimates by August 2008 • Reports on browser management interventions						RPC
	De-stock population to MPCC level and	• Surplus rhinos translocated and						RPC, SGR

Rhino Conservation Area	Activity/Action	Indicator	Time					Responsibility
			2007	2008	2009	2010	2011	
	implement harvesting strategy to maintain population at MPCC level	harvesting strategy implemented by December 2008						
	Develop digitised map for Solio GR	• Digital map integrated into *Kifaru* system by October 2007						SGR, RPC
	Undertake a study on potential inbreeding within the population	• Report by December 2010						RPC, H-VET, SGR, collaborating institutions
Tsavo East NP (TEP)	Carry out rhino surveys and population estimates twice every year	• Counting blocks established by July 2008 • At least two rhino surveys every year starting from 2008 • Refined population estimates						RPC, SW-TEP, SS-TCA
	Increase number of monitoring tracks	• At least 20 km of additional monitoring tracks increased annually from 2007 to a maximum of 100 km						AD-TCA, SW-TEP, SS-TCA, AD-WPU
	Implement an enhanced security system	• Annual reports mapping distribution and trend of security related issues from December 2008						AD-TCA, SW-TEP, SS-TCA, AD-WPU
	Ear-notch and fit transmitters to some rhinos to enhance monitoring and security	• At least 10 rhinos fitted with transmitters and ear-notched by September 2008 • Status and monitoring reports of radio tracked rhinos						AD-TCA, SW-TEP, SS-TCA, AD-WPU
	Review effectiveness of rhino monitoring unit	• Effective rhino monitoring unit established with a rhino warden as per the approved KWS structures by October 2007 • Deployment of rhino monitoring officer						SW-TEP, DD-C&WS
	Conduct on-site rhino monitoring training	• All rhino monitoring and security staff trained by December 2007 • At least five accredited rhino						RPC, OC-Rhino TEP

Rhino Conservation Area	Activity/Action	Indicator	Time					Responsibility
			2007	2008	2009	2010	2011	
		instructors by July 2008						
Tsavo West NP (TWP) inc. Ngulia RS (NRS)	Create Intensive Protection Zone (IPZ) in Tsavo West NP with a population of at least 10 rhinos	• Established IPZ with a ranger force of at least 40 by July 2007 • At least 10 rhinos in the IPZ by December 2007 with transmitters for tracking						REC, AD-TCA, SW-TWP
	Produce digital geo-referenced map of the IPZ and analyse rhino monitoring data	• Geo-referenced map of the IPZ with water points, potential poacher's hideouts integrated into *Kifaru* system by December 2007 • Monthly reports with rhino distribution maps and ranging patterns						RPC, SS-TCA, RS-TWP
	Training of staff with high bush-craft and monitoring skills for IPZ	• At least 10 trackers trained by October 2007 to be ready to track rhinos as soon as they are released						RPC, AD-WPU, COY-TWP
	Use of advanced technology in monitoring based on thermo-imaging	• Use of thermo-imaging set up by January 2008						SW-TWP, RPC
	Deployment of an officer to oversee security, monitoring and management of free ranging black rhino populations in the Tsavo Conservation Area	• Terms of Reference for the officer by June 2007 • Officer in place in Tsavo Conservation Area by July 2007						DD-C&WS, AD-TCA, RPC
	Undertake an independent formal assessment of IPZ after 2 years	• Assessment report by December 2009						RPC, RTC
	Security and monitoring training programme established into the Manyani field training curriculum	• Training programme started from May 2007						RPC, FTS Commandant
	Undertake vegetation monitoring and assessment within the sanctuary (to monitor rate and extent of degraded habitat recovery based on plots setup by Darwin project) including extension area and IPZ	• Initial vegetation assessment report by December 2008						H-EMU, RPC, SS-TCA, RS-TWP

Rhino Conservation Area	Activity/Action	Indicator	Time					Responsibility
			2007	2008	2009	2010	2011	
	Complete expansion of Ngulia sanctuary	• Final report on the Ngulia extension by September 2007						RPC, SW-TWP, OC-Rhino NRS
	Undertake complete (from data capture to analysis) intensive 4-night full moon water-hole photographic census during the dry season in the sanctuary	• Monthly and final census report • Data in *Kifaru* system and updated Master ID files						SW-TWP, RS-Rhino, OC-Rhino NRS
	Provision of water to Ngulia sanctuary from Ndawe escarpment	• Ndawe escarpment water catchment revived by November 2007 • Water provided from Ndawe by January 2008						RPC, SW-TWP, OC-Rhino NRS

Annex 2: Terms of Reference for Rhino Management Committees and Association

A2.1 Rhino Executive Committee (REC)

Chairman: Director, KWS

Secretary: RPC

Composition: Director, DD-W&CS, DDS, DDBR&M, DDF&A, DDCS, H-HC, H-Vet, H-SCM, Chair APLRS, RPC

Status: Executive Committee

Overall Mandate:

Assume overall executive responsibility for black rhino conservation and management in Kenya. The committee will meet at least twice a year, ideally within 2 weeks after the second quarter of the RTC meeting. The committee can also be called upon when need arises.

Specific Duties:

i. Ratify all technical decisions concerned with conservation and management.

ii. Develop and implement rhino policy.

iii. Ensure the successful implementation of all required actions.

iv. Advice on sourcing of funds.

v. Monitor funding, expenditure and effectiveness

A2.2 Rhino Technical Committee (RTC)

Chairman: DDBR&M

Secretary: RPC

Status: Advisory committee

Composition: To be composed by persons with expertise in different fields and appointed by the Director KWS.

Overall Mandate:

To advise the Rhino Executive Committee, through the coordinating office, on technical matters pertaining to rhino protection and biological management and provide a conclusive way forward on issues raised. Establish a sustained link between regional management and RTC through the coordinating office.

Specific duties:

i. Evaluate implications of technical recommendations before are implemented.

ii. Develop rhino intervention protocols, for example, domestication of international (IUCN) rhino translocation guidelines.

iii. Set monitoring standards and procedures and evaluate their implementation and effectiveness.

iv. Review all proposals for funding.

v. Review and report on the implementation of this strategy in 2011.

A2.3 Rhino Consultative Committee (RCC)

Chairman: DD-W&CS (or his/her appointee)

Secretary: RPC

Composition DD-W&CS (or his/her appointee), H-Vet, H-SCM, AD-WPU, Chair APLRS, RPC, Senior Wardens and Senior Scientists of respective rhino areas, donor/partner representatives, wardens I/C of rhino areas.

Status: Consultative Committee

Overall Mandate:

Review the management of all rhino conservation areas and sanctuaries in the country. The committee will meet on quarterly basis, and ideally before the RTC and the REC. Meetings will be encouraged to take place at different rhino conservation sites on a rotational basis.

Specific duties:

i. Review management of rhino conservation areas and sanctuaries and make appropriate recommendations base on updates from the field.

ii. Discuss and make recommendations on security issues.

iii. Discuss and make recommendations on infrastructure development and maintenance.

iv. Prioritise funding needs and advise REC and donors.

v. Update on rhino demography and status.

vi. Report on progress with implementation of site specific plans.

A2.4 Area Management Committee (AMC) of KWS

Chairman: Area Assistant Director

Secretary: Area Senior Scientist

Status: Site Management Committee

Composition: Area AD, Park SW, District Wardens, Rhino Wardens, Research Scientist and Security officer (In county council area, it will be constituted by the District warden, research scientist, community rep and Rhino warden from the County Council).

Overall Mandate:

To address rhino management issues within its mandate, and where it's unable to then forward to RTC through coordinating office or RCC. To coordinate in the implementation of decisions made by REC in collaboration with RTC and coordinating office.

Specific duties:

i. Ensure cost effective implementation of annual work plans.

ii. Ensure adequate allocation of monitoring resources (human capacity and equipment).

iii. Coordinate the link and working relations between three core division cross-cutting rhino management (Research, Security and Wildlife and community services).

iv. Synchronize rhino conservation activities by KWS, private lands, county council and community lands in a given area.

A2.5 Association of Private Land Rhino Sanctuaries (APLRS)

Chairman: Elected by members

Secretary: Elected by members

Composition: Representatives from Private Land Rhino Sanctuaries, RPC and District Wardens from each rhino area, KWS Senior Scientist – Other Species.

Status: Consultative with respect to private lands rhino sanctuaries

Overall Mandate:

Conservation and management of all rhinos held on private land in liaison and/or in collaboration with KWS. Representation of the interests of the private sector involved in the conservation and management of all rhinos on private land.

Representation of the interests of the private sectors involved in the conservation of all rhinos on private land in liaison and/or with collaboration with KWS.

Specific duties:

i. Provide secure land and offer security to all rhinos held in private land.

ii. Conduct fund raising either separately or jointly in consultation with KWS to meet costs for rhino conservation and management activities in the private sector.

iii. Capacity building among rhino monitoring and security teams.

iv. Offer advice on issues relating to rhino conservation and management to members of the Association.

v. Share logistical support – communication back-up, equipment and resource mobilisation – among members.

vi. Biological monitoring of all rhinos and competing browsers in private sector.

vii. Coordinate channelling of specific issues relating to rhino in private land to the RTC and REC in consultation with RPC.

Annex 3: Outputs of the SWOT Analysis

A SWOT analysis was undertaken to critically assess the Strengths and Weaknesses, Opportunities and Threats in respect to the internal environmental factors affecting rhino conservation. The result of this analysis and related strategic objectives are set out below:

Strengths	Weaknesses	Opportunities	Threats
Coordination and Support			
• Well defined coordination structure • Satisfactory capacity and abilities • Support and good will from stakeholders • Availability of basic resources (fences, equipment) • Honesty and transparency amongst staff • Rhino as a special animal in Kenya. • National rhino status reports	• Indecisiveness due to sensitivity on rhino issues • Under exploitation of revenue generation opportunities from rhino related activities • Poor staff welfare • Frequent and unfocused transfers • Lack of infrastructure development • Insufficient funding • Irregular national meetings • Lack of information packages for the respective stakeholders • Inadequate conservation education awareness	• Willingness of GoK and other stakeholders & donors to support KWS • Supportive MoUs • Anticipated new Wildlife Policy and legislative changes • Performance contracts will enhance efficiency • Potential for revenue generation as a "flagship species"	• Illegal trade in endangered species • Incompatible policies • Uncertain donor and GoK support • High turnover of senior staff
Protection			
• Known international market of illegal rhino horn • Established investigation unit in KWS	• Inadequate information sharing on international trophy movement • Inadequate manpower	• Government and community support • Community scouts established in several areas	• Extensive network of poachers and diversifying methods of poaching • Lifting ban on black rhino trophy hunting

Strengths	Weaknesses	Opportunities	Threats
• Known location of rhinos in the country • Adequate information network • Existing wildlife Act/Law • Existing cross-border linkages	• Inadequate focus on illegal habitat destruction • No effective link between anti-poaching units and the local community • Inadequate stockpile strong-rooms • Inadequate joint operations with the neighbouring States • Lack of formal structures to facilitate joint operations in neighbouring States • Weak penalties for wildlife crimes		• Exaggerated market value of rhino horns and its derivatives • Widening intelligence cover as a result of increasing human population • International market for rhino horn • Corruption
Monitoring			
• Institutionalised rhino monitoring and surveillance unit • Existing standardised monitoring systems • Recognised data quality control and procedures • Institutionalised training programmes	• Increasing numbers of clean animals • Inadequate post release monitoring • Inadequate monitoring of invasive plants species and competing browsers • High staff turnover • Inadequate staff and monitoring equipment • Ineffective monitoring of outlier rhinos reported in community lands	• Incorporation of basic monitoring and training in the Manyani and KWSTI curriculum • Standardised cross border monitoring • Community involvement • Partnerships with IUCN SSC AfRSG	• Lack of Management Plans for rhino conservation areas • Insecurity • Tourism disturbance • Lack of community involvement and support • Lack of adequate monitoring personnel

Strengths	Weaknesses	Opportunities	Threats
Biological			
• Guiding carrying capacity estimates for most sanctuaries • Competition from other herbivores documented • Adequate translocation capacity and ability • Institutionalised national status reporting • Good knowledge of population performance indicators in sanctuaries • Science driven management • Existing guidelines and trained capacity on rhino ecology	• Inability to implement decision on competing browsers • Lack of management plans to deal with invasive plant species • Slow implementation of management strategies of competing browsers • Insufficient secure space for surplus rhino	• Well breeding sanctuary populations • Availability of large areas of good rhino habitat (Tsavo, Meru, Laikipia) • Establishment of IPZ • Placement of rhino conservation in Biodiversity Research and Monitoring	• Inadequate security in free ranging areas • Poaching • Overstocking of rhinos and competitors • Invasive plant species • Habitat degradation
Capacity			
• KWS 2005–2010 Strategic Plan • Good infrastructural resource • Local wildlife management and para-military training institutions	• Ineffective deployment of trained personnel • Inadequate number of trained personnel • High staff turnover of specially trained staff • Inadequate resource allocation to specific rhino areas • Little opportunity to apply acquired trained skills • Lack of adequate capacity on the ground to analyse monitoring data	• Training ground for rhino monitoring staff from other range States • Further training of qualified staff and new staff • Good potential for capacity development partnerships • Potential to attract development partners	• Limited financial resources • Institutional inertia – inadequate implementation of plans • Limited land availability – effect on employment opportunities • Brain drain of professional staff

Strengths	Weaknesses	Opportunities	Threats
Community			
• Community willingness to participate in rhino conservation • Existing community support by KWS or to KWS	• Complexity of community governance • Inadequate rhino management expertise in communities	• Expansion of rhino ranges • Increased partnerships • Improved communication • Rhino conservation awareness • Potential for minimising environmental degradation • Improved communication • Job opportunities	• Adverse political decisions • Potential disagreements in land use options • Inconsistency in policy implementation

ANNEX 4: GUIDELINES FOR THE KEEPING AND MANAGEMENT OF THE WHITE RHINO

Plate 2: Walking white rhino under sedation

DECLARATION

Considering:

- That an out-of-range population of southern white rhino (*Ceratotherium simum simum)* has been established in Kenya on State, private and community land and is growing rapidly;
- That there is no supporting legislation, management strategy and only minimal guidelines for the species;
- That the species is no longer critically endangered in Africa with >14,000 animals in over 300 populations and though still in Appendix 1 on CITES, the populations of South Africa and Swaziland have been down-listed to Appendix 2 with annotations;
- That the species has considerable value for tourism and for driving community conservation initiatives;
- That the white rhino horn is a focus for illegal trade and therefore also driving the trade involving poaching of the endangered black rhino (*Diceros bicornis michaeli*);
- That the white rhino consumes significant conservation resources and secure suitable habitat is limited;
- That the northern subspecies of white rhino (*C. s. cottoni*) is no longer viable and is likely to go extinct;

The following overall strategic goal for the management of white rhino in Kenya is recommended.

White rhino is managed as a species for community conservation, education and tourism and as a conservation resource for restocking white rhino ranges outside of Kenya.

A4.1 Background

There are 285 white rhino in Kenya on private, community and State land, all of the southern race (*Ceratotherium simum simum*) from an introduction from South Africa (Plate 2) (six animals in the 1965, twenty in the 1970s, five in 1992 and twenty in 1994 from Zululand of which six died due to disease). The population is growing rapidly. There is no supporting legislation, management strategy or guidelines for the species, which is not indigenous to Kenya. The process of bringing these animals into the country was justified initially on conservation grounds and was called a reintroduction. This was based on the presence some 3000 years ago of another white rhino species amongst East African fauna based on fossil records and cave paintings. This much larger animal was likely hunted to extinction. As the southern white rhino was recovering from near extinction itself there was little debate about this at the time and much of the effort went into breeding and raising the species in suitable habitat. Now over 14,000 southern white rhino exist in over 350 wild populations worldwide and as its status has significantly improved, the species is no longer listed in one of the IUCN (2006) threatened categories and is rated as Near Threatened. It has also been down-listed by CITES from Appendix I to Appendix II in most of its range. There is therefore no longer such a strong argument for *ex situ* breeding for conservation purposes. An alternate view is that with the northern white rhino likely to go extinct with only three remaining in the wild and few in captivity, the southern subspecies would then be the logical rhino replacement into the original range in Uganda, Sudan and the Democratic Republic of Congo (DRC). For this repopulation, conservation breeding will be required and an initiative to this end has already started in Uganda.

Current knowledge therefore suggests that the southern white rhino should **not** be considered an indigenous species or listed as such amongst the Kenya species. Its presence as an exotic species under free-ranging conditions should be recognised in law and that justification for its presence and management should be based on different criteria to that of the endangered indigenous black rhino (*Diceros bicornis michaeli*)). The justification for keeping white rhino is:

- for conservation purposes, where breeding the species supports reintroduction of white rhino into original (northern subspecies) range;
- for conservation education due to the high visibility of the animal;
- as a driver for tourism and community conservation initiatives as it is an attractive species and it is relatively easy to manage, thriving on Kenyan grasslands outside of the trypanosome and tsetse belts;

However, there are some negative aspects of keeping southern white rhino which need to be considered in the management guidelines:

- that even though the white rhino can sometimes provide a buffer against poaching of black rhino in reserves where both species occur, the white rhino horn is a focus for illegal trade and therefore also drives the trade involving poaching of the endangered indigenous black rhino;
- that the white rhino consumes significant conservation resources and secure suitable habitat is limited and its presence will displace other indigenous grazing species, and this problem will worsen if breeding is encouraged and the population grows at the current rate.

A4.2 Current status and distribution of Southern white rhino in Kenya

A list of the numbers and distribution of the white rhino in Kenya is shown in Table 2, below. The majority of white rhino are privately owned but the proportion on State land has been increasing.

White rhino area	Population Estimate	Area[8] (km^2)	Density (rhino/km^2)	Remarks
Lake Nakuru NP	45	144	0.31	Based on daily monitoring data
Solio GR	128	72	1.78	Recent census (minimum)
Lewa WC	37	247	0.1	Known population
Ol Pejeta WC	5	93	0.1	Known population
Ol Jogi GR	8	50	0.16	Known population
Nairobi Safari Walk	1	0.5	2	Known population
Delta Crescent Ranch	2	_	-	Known population
Ol Chororwa	3	_	-	Known population
Kigio Ranch	2	_	_	Known population
Enasoit	2	_	-	Known population
Mugie RS	2	93	0.02	Known population
Oserian	10	397	0.03	Known population
Meru NP	38	48	0.79	Known population
Il Ngwesi CR	2	170	0	Known population
TOTAL	**285**	**1,319**	**0.22**	

Table 2: Kenya white rhino population estimates (2006).

The southern white rhino can be traded but there are relatively few new sanctuaries available for expansion and overpopulation in currently occupied habitat is imminent. All decisions over their sale, movement, management, custodianship and protection must be made with the approval of, and in consultation with KWS. Any movement of white rhino in and out of the Republic of Kenya must have the written approval of the Director of KWS, as authorising party to the CITES convention and the approval be accompanied by an export permit authorised by the Director of Veterinary Services (DVS) of the Republic of Kenya after fulfilling all veterinary requirements. KWS may enforce management decisions for the white rhino on private owners as for any other species of wildlife in the Republic, particularly if they endanger the survival of the white rhino itself or compromise or conflict with measures to conserve the black rhino in Kenya.

[8]Not all the area of the white rhino reserve indicated is available for the rhinos

A4.3 Guidelines for management of the National Herd

A4.3.1 Biological Management

i. Unlike for black rhino, there will be less emphasis on national annual growth rate until new sites become available (both within Kenya and in the East African region). This can be achieved by maintaining current growth rates through management of the population into breeding and non-breeding sites with appropriate approval through the national rhino management structure and coordination.

ii. Importation should be discouraged as current numbers of white rhino in Kenya is a viable base population and the problem is likely to be disposal of animals.

iii. National status reports should be reviewed by the RTC every 2 years and appropriate actions undertaken.

iv. Disease threats should to be determined and protocols for efficient diagnosis developed, implemented and results reported.

v. Studies on the impact of white rhino on grassland and as a competitor to other grazing herbivores should be conducted.

vi. Procedures to assess white rhino habitat and ecological carrying capacity should be developed and implemented to manage existing rhino areas and to assist in developing new areas in the region.

vii. The rhinos should be managed at or below the carrying capacity of the land.

A4.3.2 Monitoring for Management

i. Where appropriate all white rhino should be individually recognisable and possibly ear notched.

ii. Standardised age-class and body condition scoring should be implemented in all white rhino conservation areas.

iii. Records including all sales, transfers, births and deaths should be submitted to KWS Rhino Programme on a quarter yearly basis.

iv. A white rhino database system should be implemented to hold the metapopulation data. The national database system should be implemented at KWS Rhino Programme and where necessary, a site-based database system should be implemented in State and private white rhino conservation areas.

v. Historical data on origin, movement and status of individual rhino populations should be quality checked and consolidated into the system.

vi. Annual status reports with synthesised and interpreted results should be produced for each white rhino conservation area and summarised at the national level every 2 years. The national status reviews should be provided to the Rhino Technical Committee (RTC) and managers of State and private white rhino conservation areas.

A4.3.3 Protection

i. Changes in the legislation proposed for penalties for illegally hunting black rhino (*Diceros bicornis*) should also include the white rhino (*Ceratotherium simum*).

ii. There should be adequate security in white rhino conservation areas which is at least as good as that provided for black rhino.

iii. White rhino crime investigation, prosecution and sentencing should be at the same level as that for black rhino.

iv. Holding of firearms by security staff in private white rhino conservation areas should be negotiated with the District Security Committees, and Kenya Police Reserve (KPR) status, and Temporary Police Permits established as necessary.

v. Changing poaching methods and trends should be monitored closely; for example, there is an increase in silent methods such as snaring.

vi. The impact of white rhino on the illegal trade in horn and killing of black rhino in Kenya should be determined.

vii. White rhino horn stock pile and trophy management should be fully and legally integrated into that provided for the black rhino with accurate record keeping, reporting and a standardised management system based on microchip transponders if budgets allow. However the physical stock pile should be maintained separately to that of the black rhino. The stockpiles should be randomly audited by KWS so that the effectiveness of security measures can be monitored.

viii. There should be a similar level of community engagement as with black rhino. Some sort of benefit sharing (for example, from tourism revenues) for financing community assistance schemes focused on buffer zone communities should be implemented to achieve a more conducive environment for protection and collaboration in white rhino conservation areas.

A4.3.4 Coordination and Support

i. The decision-making framework (through area level committees to national committees) developed for black rhino management should also be used for white rhino metapopulation management.

ii. All non-State white rhino conservation areas should be encouraged to join the APLRS for improved coordination.

iii. All white rhino immobilisations/interventions and translocations including imports and exports should be carried out in consultation and approval by KWS (through RTC and REC).

iv. The coordination of white rhino population management, as an introduced species living in free-ranging conditions, should be legally endorsed and mandated by KWS. Ownership of white rhino can remain with the private or public entity. Opportunity for sale should be allowed but where overpopulation and absence of a buyer's market exists alternate transfer mechanisms should be established in agreement with the owner, including custodianship to enable effective metapopulation management.

v. The Kenya population should be managed as a metapopulation of the southern white rhino. Movements into or out of the region should be endorsed both nationally and regionally by the wildlife authorities and the IUCN African Rhino Specialist Group.

vi. Efforts should be made to provide animals through a regional rhino management group established for East Africa focused on restoration of white rhino in Uganda, Sudan and the DRC.

vii. There is a biannual rhino wardens meeting involving all rhino conservation areas.

Annex 5: List of Participants

KENYA RHINO CONSERVATION STRATEGY WORKSHOP

28 JANUARY – 2 FEBRUARY 2007

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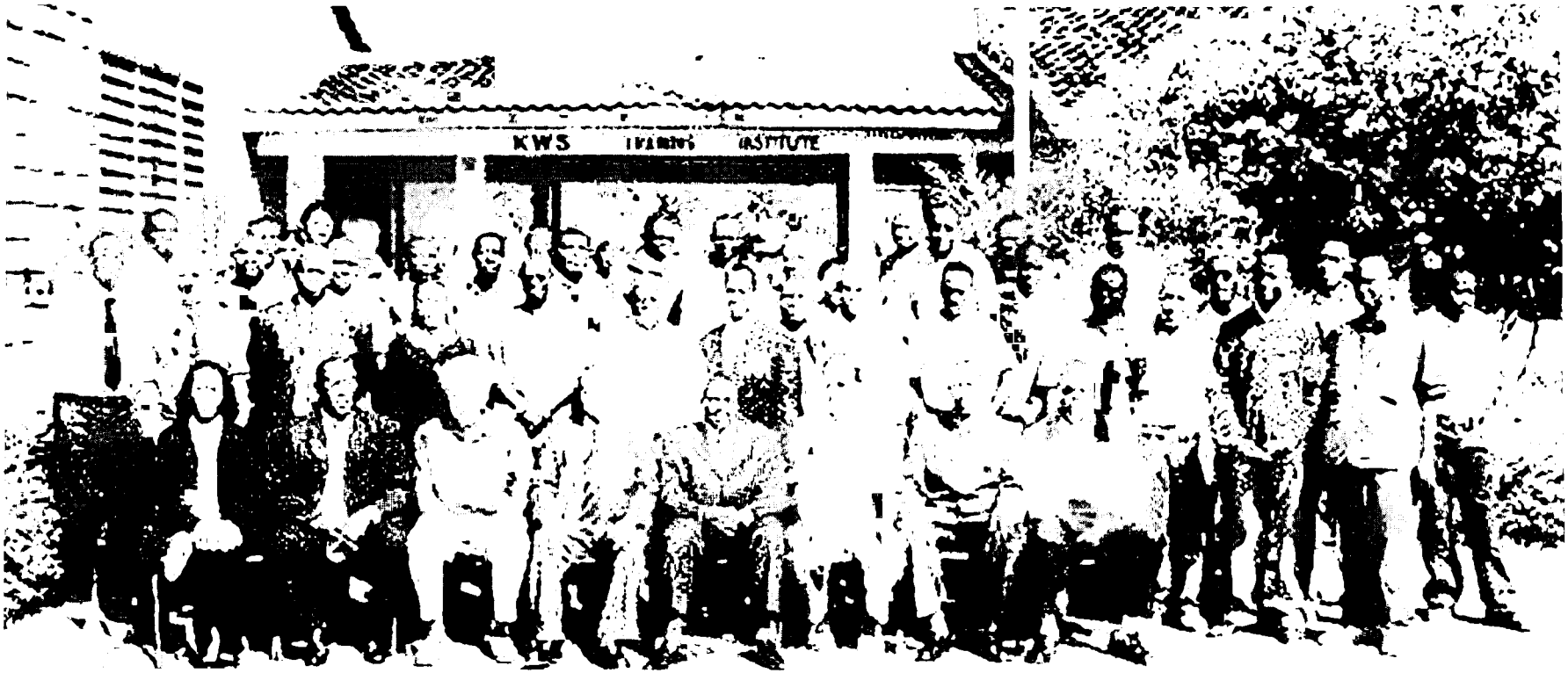

Plate 3: Rhino Stakeholders' Workshop participants, KWSTI, Naivasha, Kenya (28th January - 2nd February 2007).