

RECOVERY AND ACTION PLAN FOR GIRAFFE 2023-2027



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Front cover images: Reticulated/Somali giraffe (top) Masai giraffe (middle) Nubian/Rothschild's giraffe (bottom) All images copyright Giraffe Conservation Foundation

NATIONAL RECOVERY AND ACTION PLAN FOR GIRAFFE 2023 - 2027 Second Edition







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Abbreviations



ACC	African Conservation Centre
AFEW	African Fund for Endangered Wildlife (Kenya)
ASAL	Arid and Semi-Arid Lands
AWF	African Wildlife Foundation
BLF	Big Life Foundation
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
CR&ES	Community Relations and Education Service
DD	Deputy Director
DD WS	Deputy Director Wildlife Security
DG	Director General
DRSRS	Directorate of Resource Surveys and Remote Sensing
EA	Environmental Audit
EIA	Environmental Impact Assessment
GCF	Giraffe Conservation Foundation
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
KALRO	Kenya Agricultural and Livestock Research Organisation
KFS	Kenya Forest Service
KICD	Kenya Institute of Curriculum Development
KLCT	Kenya Land Conservation Trust
KPLC	Kenya Power
KWS	Kenya Wildlife Service
LAPSSET	The Lamu Port Southern Sudan-Ethiopia Transport
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organisations
NP	National Park
NR	National Reserve
NRT	Northern Rangelands Trust
NWC	Nakuru Wildlife Conservancy
OGW	Order of Grand Warrior
SSC	Species Survival Commission (IUCN)
WCK	Wildlife Clubs of Kenya
WCMA	Wildlife Conservation and Management Act
WRTI	Wildlife Research and Training Institute

Glossary



Extra limital population:	population introduced outside species natural range.
Extra limital introduction:	process of introducing wildlife population outside their natural range.
Invasive Species:	Plant or animal that is not native to a specific location (an introduced species) and tends to spread causing damage to the environment, human economy and/or human health.
IUCN categories of threat:	<i>Extinct, Extinct in the Wild, Critically Endangered, Endangered, Vulnerable, Near Threatened,</i> and <i>Least Concern</i> are threatened categories of the IUCN 'Red List' of threatened species and has become an important tool defining conservation status and subsequent action at international, national, and thematic levels. The existing definitions are based upon a series of criteria.
	<i>Extinct:</i> A taxon is considered 'Extinct' when exhaustive surveys in known and/or expected habitat throughout its historic range have failed to record an individual.
	<i>Extinct in the Wild:</i> A taxon is 'Extinct in the Wild' when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range.
	<i>Critically Endangered:</i> A taxon is ' <i>Critically Endangered</i> ' when the best available evidence indicates that it faces extremely high risk of extinction in the wild.
	Endangered: A taxon is 'Endangered' when the best available evidence indicates that it faces a very high risk of extinction in the wild.
	<i>Vulnerable:</i> A taxon is ' <i>Vulnerable</i> ' when the best available evidence indicates that it faces a high risk of extinction in the wild.
	<i>Near Threatened:</i> A taxon is ' <i>Near Threatened</i> ' when it does not qualify for <i>Critically Endangered</i> , <i>Endangered</i> or <i>Vulnerable</i> now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.
	<i>Least Concern:</i> A taxon is considered ' <i>Least Concern</i> ' when it is widespread and abundant in its known range.
Translocation:	Capture, transport and release of individuals from one area to another, either to improve chances of survival, establish new populations, to augment established populations and/or to introduce new genetic lines into a population.
Anthropogenic:	Changes in nature made by man.
Wildlife drive:	process of 'chasing' wildlife from one area to another using helicopters or vehicles.
Captive:	facilities that provide shelter and care to wildlife. The facilities could be a sanctuary, an orphanage or a rescue centre, the animals are fully dependant o n human care.
Semi-captive:	facilities that provide shelter and care to wildlife. In these facilities the animals are not fully dependant on human care.
Enclosed:	natural areas that offer refuge to wildlife, the animals can be independent of human care but are not able to move from one area to another. These facilities are mostly fenced.
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Foreword





Giraffe are considered one of Kenya's most charismatic, ecologically, and economically important mega-fauna with its image embedded in several national memorabilia including the Kenyan currency.

Kenya launched the first-ever 5-year National Recovery and Action Plan for Giraffe (2018 - 2022) in Kenya in 2018, which was successfully implemented. From the lessons learnt, the second edition of the Recovery and Action Plan (2023-2027) has been developed to consolidate the efforts and build on the foundation which was established.

We are privileged to be a unique country which hosts three species of giraffe namely, the Masai giraffe, Nubian/Rothschild's giraffe, and the reticulated/Somali giraffe, which we should jealously safeguard as part of our national heritage.

All three giraffe species are accorded the relevant protection in the Wildlife Conservation and Management Act 2013, and Nubian/Rothschild's giraffe are listed as 'Endangered' in the sixth schedule of the Wildlife Conservation and Management Act, 2013. Giraffe are also listed in Appendix II of CITES, which places prohibitions on uncontrolled trade of a species and Appendix II of CMS, which compels range states to develop frameworks to protect migratory species and their habitats. However, despite the legal and policy framework on protection of the giraffe, we are cognisant of the fact that the threats facing the species continue to escalate.

It is of concern to note that, the giraffe population in Kenya has declined by \sim 40% over the last three decades from an estimated population of 45,000 in 1998 to an estimated population of 28,894 individuals in 2018 (Masai giraffe: 12,717; reticulated/Somali giraffe: 15,524 and Nubian/Rothschild's Giraffe: 653). However, the population has stabilized to a currently estimated 35,858 individuals (reticulated/Somali: 19,659; Masai: 15,158 and Nubian/Rothschild's: 1,039)

There is need for all stakeholders to come together to address the main threats to giraffe conservation. Key among them are: habitat loss, fragmentation and degradation mainly attributed to the increasing human population pressure leading to changes in land use which are not compatible with conservation; subdivision of former community ranches into smaller parcels and fencing leading to loss of critical wildlife habitats and insulation of giraffe populations; bushmeat trade; infrastructure development which negatively impacts the giraffe; and, climate change evident by increased frequency of prolonged severe drought presents another monumental challenge to wildlife with giraffe in the rangelands being hard hit among others.

This Recovery and Action plan is aimed at guiding implementation of activities by various stakeholders that will address the identified conservation challenges and therefore lead to sustainable conservation and management of giraffe within their natural ranges in Kenya.

The Government through my Ministry will continue to provide the required policy guidance and necessary support to mitigate the current threats. The Ministry will collaborate with relevant ministries and government agencies to address the risks posed by infrastructure projects which include accidents through road and railway kills, electrocution by powerlines among others which is in line with Sessional Paper No. 01 of 2020 on Wildlife Policy which provides a coordinated framework for wildlife management in Kenya considering other sectoral policies and the roles of various agencies. The goal of the policy is to ensure sustainable management of Kenya's wildlife resources through effectively and equitably managed, ecologically representative, and well-connected systems of protected areas and other effective area-based conservation measures and integrated into the wider landscapes and seascapes to provide for the social, economic, ecological, cultural, and spiritual needs of present and future generations.

I commend KWS with support from conservation stakeholders for remaining true to their call of duty in conservation and management of Kenya's wildlife and their habitats. I call upon all stakeholders to continue supporting KWS in implementation of its mandate and enforcement of related laws and policies.

HON. DR. ALFRED N. MUTUA, EGH CABINET SECRETARY MINISTRY OF TOURISM AND WILDLIFE

Preface





Wildlife Conservation and Management Act, 2013 (Amendments, 2019) mandates Kenya Wildlife Service to conserve wildlife and their habitats wherever they occur in collaboration with stakeholders. It also mandates the Service in collaboration with stakeholders to develop and implement recovery and action plans for the conservation and management of all species listed in the sixth schedule (rare, endangered, and threatened species) whose survival is threatened with giraffe being among them.

The four pillars of the National Wildlife Strategy (2018 - 2030) namely, Resilient ecosystems, Engagement by all Kenyans, Evidence-based decision-making, and Sustainability and governance, are important considerations in development and implementation of endangered species Recovery and Action Plans if the desired outcome is to be achieved.

Eighty percent (80%) of Kenya's wildlife is found on the rangelands and most of these wildlife habitats occur in community land which is undergoing significant land use changes due to the increasing human population are of oritical wildlife habitate.

pressure leading to loss of critical wildlife habitats.

We shall have deliberate conversations with the communities through their leaders on how to work together to safeguard the future of wildlife and how to realize tangible benefits to communities through structured frameworks to tap into the emerging biodiversity economies such as the carbon credits and other benefits from the natural capital.

The Government has prioritized efforts to safeguard the Country's wildlife resources and their habitats for posterity through enactment of relevant laws and policies to ensure the wildlife resources are secured for the benefit of the current and future generations.

The Ministry has prioritized actions aimed at restoration of degraded habitats, enhancing connectivity of landscapes, supporting nature-based livelihoods through increased benefits from conservation while addressing human-wildlife conflict which has been on the rise and reducing communities' tolerance towards wildlife.

I am glad to note that relevant stakeholders, and particularly communities, have been part of the development process of this Recovery and Action Plan. Implementation of the identified activities in the Plan will require the support of all stakeholders. I call upon NGOs and partners to support KWS to raise the required resources to facilitate implementation of the Recovery and Action Plan to ensure the future of Kenya's wildlife is secured.

SILVIA MUSEIYA PRINCIPAL SECRETARY STATE DEPARTMENT FOR WILDLIFE MINISTRY OF TOURISM AND WILDLIFE



Acknowledgements





Kenya Wildlife Service Strategic Plan (2019 – 2024) provides a framework to guide the Service in discharging its mandate in a rapidly changing and challenging environment. It has a long-term view of ensuring that wildlife resources exist for posterity for Kenyans and the benefit of humankind to be achieved through the key pillars of conservation and collaboration.

As mandated by section 49 of the WCMA, 2013, the Service in collaboration with stakeholders, developed the second edition of a five-year National Recovery and Action Plan for Giraffe in Kenya (2023 – 2027) to secure the future of the three giraffe species. This was undertaken through a collaborative process between government institutions, non-state actors, research and academic institutions, community, and private conservancies to ensure the future of giraffe is safeguarded.

I would like to thank everyone who supported the development of this second edition of the Recovery and Action Plan. I am particularly thankful to the Ministry of Tourism and Wildlife for providing the required

leadership and policy guidance in conservation and management of the country's wildlife resource.

We acknowledge the commitment of all stakeholders, conservation partners and communities where the three giraffe species occur. Without your support, we could not have successfully implemented the first edition of the giraffe Recovery and Action Plan and developed this second edition which was developed in record time.

We acknowledge the selfless efforts by personnel who spend long hours in very challenging environment to ensure our wildlife resource conserved. KWS will continue to partner with communities to address the threats to wildlife conservation especially human-wildlife conflict and poaching of giraffe for bushmeat which threatens their survival.

We are grateful to the technical team from the Service, WRTI and Giraffe Conservation Foundation which provided leadership for this Recovery and Action Plan.

Finally, we are grateful to the Giraffe Conservation Foundation for providing financial and technical support to facilitate various committee workshops during the implementation of the first edition of the Recovery and Action Plan, workshops to undertake end-term review, which facilitated the development, layout, and printing of the second edition of the Giraffe Recovery and Action Plan (2023–2027).

We call upon all stakeholders to partner with the Service to realize our Vision which is "To conserve Kenya's wildlife and its habitats for posterity".

DR. ERUSTUS KANGA, EBS, HSC DIRECTOR GENERAL KENYA WILDLIFE SERVICE



Executive Summary



Kenya has three extant species of giraffe, namely: the Masai giraffe (*Giraffa tippelskirchi*), Nubian/Rothschild's giraffe (*G. camelopardalis camelopardalis*), and reticulated/Somali giraffe (*G. reticulata*). In 2018, the first-ever National Recovery and Action Plan for Giraffe in Kenya (2018 - 2022) was launched with the aim of bringing attention to the various threats that the individual species face throughout their range in the country. The National Recovery and Action Plan for Giraffe in Kenya (2018 - 2022) was driven by a single Vision and Goal of recognising the country's unique heritage and legacy as the world's centre of giraffe diversity while also ensuring benefits accrue to local communities. The Vision and Goal were underpinned by six strategic objectives.

Since 2018, the Kenya Wildlife Service (KWS), mandated with conserving and managing wildlife, and to enforce related laws and regulations in the country worked with various partner institutions to implement the Recovery and Action Plan for Giraffe in Kenya (2018 – 2022). With support from the Giraffe Conservation Foundation, KWS held Range Committee meetings between 2019 and 2022, bringing together stakeholders from the various sites where the three giraffe species occur. The aim of these meetings was to assess the threat levels and review the work being done as part of the implementation of the Strategy. Additionally, these workshops facilitated a wider distribution and dissemination of the National Recovery and Action Plan for Giraffe in Kenya (2018 – 2022), as well as promotion of data sharing between the various giraffe conservation stakeholders. This helped to update the giraffe estimates from 28,894 individuals in 2018 (Masai giraffe:12,717; reticulated/Somali giraffe: 15,524 and Nubian/Rothschild's giraffe: 653) to the current estimate of 35,858 individuals (reticulated/Somali: 19,659; Masai 15,158 and Nubian/Rothschild's: 1,039).

The Range Committee workshops also served as a baseline for reviewing the first edition of the Recovery and Action Plan given that reports from the various meetings were used to incorporate updated data into the second edition. A group of experts from the main thematic areas of security and law enforcement, ecology, wildlife health, and human dimensions, chosen from government and non-government conservation research institutions, as well as community members, participated in a national workshop in Naivasha in January 2023. The main aim of the 2023 national workshop was to ensure that the second edition of the National Recovery and Action Plan for Giraffe in Kenya (2023 – 2027) reflects the progress made since the first edition was launched, and incorporates the challenges faced during the implementation of the Recovery and Action Plan while highlighting persistent and emerging threats that giraffe face in Kenya. This second edition also integrates lessons learned to highlight an implementation structure that better fits into existing institutional frameworks. Lastly, many of the vision, goal and the strategic objectives and activities were made clear and measurable with a direct link to giraffe conservation.

Vision: "To have genetically viable populations of the three species in suitable and secure habitats for posterity and accruing benefits to Kenyans, recognising Kenya's unique heritage".

Goal: "To mitigate the threats and maintain a self-sustaining giraffe population through a multi-stakeholder's approach to achieve a net positive population growth by 2027".

Six Strategic Objectives:

- 1. Enhance protection of giraffe to mitigate current and emerging threats.
- 2. Secure and improve giraffe habitats to ensure long-term survival of populations.
- 3. Ensure effective management of enclosed populations to secure their long-term conservation.
- 4. Ensure coordinated research and monitoring of giraffe populations.
- 5. Enhance community and stakeholder involvement in giraffe conservation to facilitate information exchange, education, and public awareness.
- 6. Ensure infrastructural developments in giraffe ranges are friendly and compatible with their conservation.

The coordination framework has also been revised and membership updated to make it more effective with KWS being the overall institution responsible for development and implementation of endangered species recovery plans working with relevant stakeholders. A monitoring and evaluation framework has also been introduced for the national-level actions. The three Range Committees will develop site-specific plans with a monitoring and evaluation framework. Implementation of major activities are estimated to cost approximately Ksh. 44,250,000 annually with routine activities planned and budgeted for in respective institutional budgets.



1. Introduction



Background

To promote giraffe conservation in Kenya, KWS launched the first-ever National Recovery and Action Plan for Giraffe (2018 – 2022) in Kenya in November 2018. This important conservation tool was underpinned by frameworks that were established for other species including elephant (*Loxodonta africana*), cheetah (*Acinonyx jubatus*) and wild dogs (*Lycaon pictus*), lion (*Panthera leo*) and spotted hyena (*Crocuta crocuta*), black rhino (*Diceros bicornis*), Grevy's zebra (*Equus grevyi*), among others. Species-specific action plans have proved successful in addressing the deficiencies, knowledge gaps, and mitigating threats to populations either at the national, regional, or range-wide level (Fuller et al. 2003, Mace et al. 2018).

Among large charismatic species found in Kenya, giraffe had undergone a precipitous decline between the 1970s and 2016 (Ogutu et al. 2016). Giraffe numbers were estimated to have declined by \sim 67% in the aforementioned period and this concerning trend formed the basis of the first edition of the National Recovery and Action Plan for Giraffe in Kenya (2018 – 2022). The reasons for wildlife declines in Kenya are varied but have been attributed to habitat loss due to changes in land use and human population growth, climate change, wildlife diseases, and poaching (Ogutu et al. 2009, 2016, Mukeka et al. 2018, Ouso et al. 2020). As such, the first edition of the National Recovery and Action Plan for Giraffe in Kenya (2018 – 2022) sought to: 1) assess the conservation status of giraffe in the country; 2) define the conservation goals of the strategy; and, 3) specify conservation actions for giraffe in the country.

The first edition of the National Recovery and Action Plan for Giraffe in Kenya (2018 – 2022) was structured around a common Vision and six Goals. The six goals were developed following the core thematic areas of enhancing protection of giraffe populations, reversing the documented decline of giraffe populations, ensuring effective management of enclosed populations, coordinating research on giraffe populations, enhancing community involvement and finally, ensuring infrastructural developments in giraffe ranges are compatible with their conservation. To assure effective implementation of the strategy, the KWS with support from the Giraffe Conservation Foundation (GCF), held Range Committee meetings, bringing together relevant stakeholders that conduct conservation activities related to the core thematic areas that influenced the development of the goals of the National Recovery and Action Plan for Giraffe in Kenya. The Range Committee meetings represented the collaborative efforts between government institutions, non-government organisations (NGOs), research and academic institutions, and community and private conservancies to ensure that conservation efforts are guided and streamlined adequately to protect the three subspecies of giraffe in Kenya.

1.1. Policy and legal framework for the conservation of giraffe in Kenya

All three species of giraffe that occur in Kenya are accorded full protection under the Wildlife Conservation and Management Act (WCMA) of 2013 (No. 47). However, only Nubian (Rothschild's) giraffe are listed as 'Endangered' in the Sixth Schedule. Still, the hunting or killing of any giraffe species is illegal in Kenya and offenders may be penalised with a monetary fine, imprisonment or both (Kenya Wildlife Service 2016).

Kenya was among the countries that successfully pushed for giraffe to listed in the Convention on International Trade of Endangered Species (CITES) of Wild Fauna and Flora, with giraffe now listed on Appendix II since 2019. This listing seeks to monitor any form of uncontrolled international trade that could threaten their survival.

Additionally, Kenya was also among the countries that lobbied to include giraffe on Appendix II of the Convention of Migratory Species in 2018, a submission from the Government of Angola and drafted by GCF. This treaty compels signatories to protect species that move across international borders and require international cooperation to preserve and manage wildlife habitats.



Such an agreement is particularly important for Kenya considering the transboundary nature of some giraffe ranges namely on the Kenya – Tanzania, Kenya – Ethiopia, and Kenya – Somalia borders (Fig. 1).

1.2. Giraffe conservation status and distribution in Africa

1.2.1. Giraffe – scientific classification

Kingdom:	Animalia
Phylum:	Chordata
Class:	Mammalia
Order:	Artiodactyla
Family:	Giraffidae
Genus:	Giraffa
Species:	camelopardalis (Northern giraffe);
	giraffa (Southern giraffe);
	reticulata (reticulated/Somali giraffe);
	tippelskirchi (Masai giraffe).
Subspecies:	G. c. camelopardalis (Nubian giraffe); G. c. antiquorum (Kordofan giraffe); G. c. peralta (West African giraffe).
	G. g. giraffa (South African giraffe); G. g. angolensis (Angolan giraffe).
	G. t. tippelskirchi (Masai giraffe); G. t. thornicrofti (Luangwa giraffe).

Currently, the International Union for the Conservation of Nature (IUCN) recognises only one species and nine subspecies of giraffe (Muller et al. 2018). The IUCN SSC Giraffe & Okapi Specialist Group has yet to review all available data to update the taxonomy of giraffe as current classification is adapted from Lydekker (1904), whose interpretation of the geographical range of giraffe was based on limited knowledge of their actual range. Initial phylogenetic studies proposed varying taxonomic classifications of giraffe species and subspecies (Brown et al. 2007, Hassanin et al. 2007, Fennessy et al. 2016). More recent genomic studies have revealed that there are at least four species of giraffe, including seven subspecies that are genetically distinct (Fennessy et al. 2016, Winter et al. 2018, Petzold and Hassanin 2020, Coimbra et al. 2021). A new study conducted by KWS, GCF and partners found that there is limited gene flow between the extant species of giraffe found in Kenya even though their range historically overlapped (Coimbra et al. 2023). This provides the strongest evidence yet that the four species are genetically distinct.

Historically, giraffe ranged widely across the African continent, but are now largely found in national parks and reserves, private ranches, and surrounding community and conservancy lands (O'Connor et al. 2019, Brown et al. 2021). Currently, giraffe are distributed in, and arc from West Africa through Central Africa into Eastern Africa and south across Southern Africa (Brown et al. 2021, GCF 2023). Specifically, giraffe are currently found in 22 countries: Angola, Botswana, Cameroon, Central African Republic, Chad, Democratic Republic of Congo, Ethiopia, Kenya, Mozambique, Namibia, Niger, Somalia, South Africa, South Sudan, Tanzania, Uganda, Zambia, and Zimbabwe (Fig. 1). Extralimital populations are found in Angola, Democratic Republic of Congo, Eswatini, Malawi, Rwanda, South Africa, and Senegal (GCF 2023). However, giraffe have become locally extinct in at least seven countries, namely Burkina Faso, Eritrea, Guinea, Mali, Mauritania, Nigeria, and Senegal (Brown et al. 2021).

Giraffe range throughout the northern and southern savannah regions of sub-Saharan Africa, from the open woodland, avoiding dense forest and desert environments (East 1999, Brown et al. 2021). A distinctive broad strip of moist miombo woodland separates the current southern and northern range of giraffe in Africa. Over the last three decades, increased giraffe translocations have resulted in giraffe range expansions in some areas, including re-introductions to former ranges and introduction outside the subspecies historical range in some countries. While changes in population structure and distribution are easy to understand through studies, factors influencing its dynamics are not clearly known. Most population dynamics studies focus on current ranges of the species and their relation to conservation and management (Flanagan et al. 2016, Lee and Bond 2016, Brown et al. 2019, Hart et al. 2021).

Giraffe numbers across the continent are thought to have declined by \sim 28% in the last 35 years from a historic estimate of \sim 155,000 to \sim 117,000 individuals (Brown et al. 2021). This resulted in giraffe as a species being uplisted to '*Vulnerable*' on the



Fig. 1: Distribution of extant giraffe species in Africa, as well as the historical range, which has declined significantly over time due to various threats.

 $\ensuremath{\mathbb{C}}$ Giraffe Conservation Foundation

IUCN Red List of Species Threatened by Extinction in December 2016 (Muller et al. 2018). Between 2016 and 2019, all giraffe subspecies, except for the South African giraffe, were assessed by the IUCN Red List. Nubian giraffe and Kordofan giraffe were listed as '*Critically Endangered*', reticulated giraffe and Masai giraffe were listed as '*Endangered*' (Muneza et al. 2018, Bolger et al. 2019), Rothschild's giraffe were listed as '*Near Threatened*' (Fennessy et al. 2018), and Luangwa (Thornicroft's) giraffe and West African giraffe were listed as '*Vulnerable*' (Muller et al. 2018). Only Angolan giraffe were listed as '*Least Concern*'; however, the same classification might apply for South African giraffe given the increase in their numbers since the 1990s (Brown et al. 2021).

1.2.2. Biology of giraffe

The name giraffe is derived from the Arabic word 'zarafa' which translates to 'one who walks swiftly' (Shorrocks 2016). Giraffe are the tallest land mammal with a very long neck, long legs, patchy coat pattern, short ossicones, short stiff mane and long tuft of hair on the tail. While giraffe have the longest neck, they have the same number (seven) of cervical vertebrae as other mammals, with the main difference being that the vertebrae of giraffe are elongated (Solounias 1999, van Sittert et al. 2015). On average, males can grow to a height of 5.5m and females to 4.5m, whereas they can weigh 1,200 kg and 830 kg, respectively (GCF 2023). Giraffe are selective browsers with long prehensile tongue that they use in combination with the upper lip to feed on tree leaves, shoots, pods, fruits, and in rare instances, grass.



Fig. 2: Current distribution of giraffe species in Kenya. © Wildlife Research and Training Institute



Giraffe can run 50km/h for sustained periods and can kick in all directions for defence against predation. Giraffe, especially males, form loose social bonds; they adjust their social systems, ranging from solitary to large mixed herds (Hart et al. 2021). This is known as fission-fusion were individuals or smaller groups readily join or split from the herd, but this differs from one population to another (Shorrocks 2016, GCF 2023). Giraffe reach maturity at three to four years old, often later for males, and are estimated to live up to \sim 25 years in the wild, although likely longer as long-term studies are non-existent (GCF 2023).

1.3. Distribution and conservation status of giraffe in Kenya

Kenya is the only country in Africa with three unique species of giraffe occurring in government-managed and non-governmentmanaged conservation areas (O'Connor et al. 2019, Brown et al. 2021). The three species include Masai giraffe, also known as the Kilimanjaro giraffe, reticulated giraffe, also known as netted, Samburu or Somali giraffe, and are now the most abundant species in the country; and Nubian giraffe, also known as Rothschild's or Baringo giraffe (Fig. 2).

The Maasai giraffe is restricted southern region of Kenya covering areas of Tsavo, Nairobi, Athi-Kapiti plains, Amboseli, Masai Mara and parts of Naivasha ranches. Reticulated/Somali giraffe widely cover the vast ASAL parts of northern Kenya spreading from the northern parts of Lamu, Ishaqbini, Garissa, Wajir, Kenyan, Ethiopia – Somali border and Laikipia, Samburu, Meru, Marsabit (LSMM) ecosystems. Nubian/Rothschild's giraffe are found in small, enclosed areas in the country including Ruma NP (highest population), Lake Nakuru NP and some Nakuru-Naivasha Ranches (Fig. 3).

1.3.1. Masai giraffe

Masai (or Maasai) giraffe inhabit the southern areas of Kenya and range throughout Tanzania, and also include an extralimital introduction into Rwanda. Recent genetic studies have also shown that the Luangwa (Thornicroft's) giraffe in Zambia are a subspecies of Masai giraffe (Coimbra et al. 2021). There are approximately 45,400 Masai giraffe found across Africa. In Kenya, Masai giraffe occupy the savannah ecosystems of Tsavo, Nairobi, and Amboseli NPs, Athi-Kapiti ecosystem, Naivasha ecosystem, Magadi-Namanga ecosystem and Masai Mara National Reserve, as well as many community areas surrounding these conservation areas. The savannah ecosystem strides across the Kenya/Tanzania borderland thus forming important transboundary giraffe ranges of the Tsavo-Mkomazi ecosystem, Amobseli-Kilimanjaro ecosystem, Magadi-Namanga ecosystem, and Masai Mara/Serengeti ecosystem (Brown et al. 2021). Since the launch of the first edition of the Recovery and Action Plan, no giraffe have been recorded in Shimba Hills NR, and the population may be considered locally extinct.

1.3.2. Nubian/Rothschild's giraffe

Nubian giraffe survive in four populations in Uganda, possibly in South Sudan and Ethiopia where robust assessments have proved challenging, and in introduced areas in Kenya (Brown et al. 2021). They are perhaps the most endangered giraffe species, with ~3,000 individuals remaining in the wild. Historically, Nubian giraffe ranged over western Kenya, however all known wild populations have been extirpated mainly by agricultural development. In Kenya, they were introduced into numerous national parks as well as private and community conservancies and sanctuaries (Table 1). Additionally, Nubian giraffe were re-introduced to Ruko Community Conservancy in Baringo County to re-establish the population in its historical range. All Kenyan populations were derived from a single, endemic population when the defunct Soi army base, located in western Kenya north of Lake Victoria, and east of Mt. Elgon near Eldoret, was opened for resettlement in the late 1970s. However, no signs of giraffe have been observed in Mt. Elgon NP, indicating the population may now be locally extinct. The largest population of Nubian giraffe in Kenya is found in Ruma NP, followed by Soysambu Wildlife Conservancy and Lake Nakuru NP, respectively (Table 1).

1.3.3. Reticulated/Somali giraffe

Reticulated/Somali giraffe historically ranged east of the Rift Valley across southern Ethiopia, northern and north-eastern Kenya, as well as the adjacent areas of southern Somalia (East 1999). Estimates from Ethiopia and Somalia are limited, but it is likely that a minimum of \sim 15,985 individuals remain in the wild with the vast majority occurring in private and community conservancies in Kenya (O'Connor et al. 2019, Brown et al. 2021). This number represents a decrease of \sim 56% of the population (36,000) that existed in the mid-1980s (East 1999), suggesting that the subspecies has recently suffered a major and rapid decline (Muneza et al. 2018).



Fig. 3: Distribution and density of giraffe in Kenya during the National Wildlife Census in 2021. © Wildlife Research and Training Institute



Fig. 4: The four species of giraffe that occur in the wild. From left to right: southern giraffe, reticulated giraffe, Masai giraffe, and northern giraffe. © Giraffe Conservation Foundation

Table 1. Current giraffe population estimates for each species in Kenya. Note: data sources attributed in table.

ECOSYSTEM	NUMBER	SOURCE	SURVEY METHOD	YEAR			
MASAI GIRAFFE							
Amboseli (including Magadi)	6,425	KWS	Aerial	2021			
Tsavo	4,314	KWS	Aerial	2021			
Greater Masai Mara	3,290	GCF	Photographic	2021			
Athi-Kapiti and Machakos Ranches	535	KWS	Aerial	2021			
Naivasha	447	GCF	Photographic	2022			
Nairobi NP	147	KWS	Aerial	2021			
TOTAL	15,158						





ECOSYSTEM	NUMBER	SOURCE	SURVEY METHOD	YEAR		
NUBIAN/ROTHSCHILD'S GIRAFFE						
Ruma NP	550	KWS	Aerial	2021		
Soysambu Wildlife Conservancy	162	Soysambu WC	Photographic	2022		
Lake Nakuru NP	109	GCF	Photographic	2020		
Mwea NR	79	GCF/KWS	Photographic	2021		
Kigio Wildlife Conservancy	46	Kigio	Photographic	2022		
Rimoi NR	20	Rimoi	Counts	2022		
Ruko Community Conservancy	14	Ruko	Counts	2022		
Sergoit Farm	12	GCF	Counts	2017		
Tindress Farm	12	GCF	Counts	2022		
Giraffe Centre	11	Giraffe Centre	Counts	2023		
Nasalot NR	10	GCF	Counts	2022		
Haller Nature Park	8	GCF	Counts	2022		
Nguuni Nature Sanctuary	7	GCF	Counts	2022		
TOTAL	1,039					
RETICULATED/SOMALI GIRAFFE						
Wajir	6,120	KWS	Aerial	2021		
Garissa	4,830	KWS	Aerial	2021		
Laikipia-Isiolo-Samburu-Marsabit-Meru	4,691	KWS	Aerial	2021		
Lamu-Lower Garissa	3,919	KWS	Aerial	2021		
Mandera	91	KWS	Aerial	2021		
Turkana	44	KWS	Aerial	2021		
TOTAL	19,659					
TOTAL ESTIMATE	35,856					

2. THE REVISED RECOVERY AND ACTION PLAN FOR GIRAFFE IN KENYA



2.1. Formulation process of the second edition of the Recovery and Action Plan for Giraffe in Kenya

The first edition of the Recovery and Action Plan for Giraffe in Kenya (2018 - 2022) established three Range Committees corresponding to the three species of giraffe that occur in the country, to coordinate the implementation of the National Recovery and Action Plan for Giraffe in Kenya and centralise information and data relating to giraffe conservation. To this effect, the Masai Giraffe Range Committee met in 2018, 2019, and 2021, the Nubian/Rothschild's Giraffe Range Committee met in 2017, 2019, and 2022, and the Reticulated/Somali Giraffe Range Committee met in 2019 and 2022. Range Committee meetings could not be held for most parts of 2020 and early 2021 due to restrictions related to the Covid-19 pandemic. As part of these meetings, participants from various government and NGO institutions with interests in giraffe conservation shared progress on activities and data that directly contributed to the implementation of the National Recovery and Action Plan for Giraffe in Kenya (2018 – 2022). These updates were then collated into species-specific action plans that outlined priority conservation actions, namely Masai Giraffe Action Plan, Nubian/Rothschild's Giraffe Action Plan, and Reticulated/Somali Giraffe Action Plan for Giraffe in Kenya (2023 – 2027).

In January 2023, a two-day National Workshop coordinated by KWS and supported by GCF was held in Naivasha to synthesize findings from the three Action Plans and review the progress made since the launch of the first edition of the Recovery and Action Plan for Giraffe in Kenya (2018 - 2022), while highlighting the challenges faced, persistent and emerging threats and ensuring that the implementation structure better fits existing institutional frameworks. Considering the threats that were highlighted, participants revised the Vision and Goal of the second edition of the Recovery and Action Plan for Giraffe in Kenya (2023 - 2027) to better reflect the conservation status of giraffe in the country. The new Vision and Goal are presented in Chapter 4 of this Recovery and Action Plan. Participants of the National Workshop were grouped into thematic areas of ecology, security and law enforcement, human dimensions, and wildlife health. The participants also highlighted priority conservation actions that will be used to measure success, and revised the Strategic Objectives to ensure that conservation projects have a direct impact and link to giraffe conservation and management at local and national levels. The findings and recommendations of the participants of the National Workshop formed the core of the revised Recovery and Action Plan for Giraffe in Kenya (2023 - 2027).

2.2. Evaluation of the First Edition of the Recovery and Action Plan for Giraffe in Kenya

Most of the conservation actions identified in the first edition of the Recovery and Action Plan for Giraffe in Kenya (2018 - 2022) are partially completed, with activities still ongoing. More specifically, 64.2% (52 activities out of 81) of the conservation actions were considered completed or ongoing by the various giraffe conservation stakeholders since it was launched in 2018 (Fig. 4). Only five conservation actions were completed, namely: Strategic Objective 1.2.2., Strategic Objective 2.1.2., Strategic Objective 4.1.2., Strategic Objective 4.2.4., and Strategic Objective 4.2.6 of the first edition. However, 35.8% (29 activities out of 81) were not implemented at all, with the majority incorporated within Strategic Objective 6 (Ensure infrastructural developments in giraffe ranges are compatible with their conservation). Participants of the National Workshop found that all the activities listed in Strategic Objective 6 required the participation and buy-in of government stakeholders that were not involved in the implementation of the Recovery and Action Plan. Additionally, the proposed activities were revised in the second edition of the Recovery and Action Plan for Giraffe in Kenya (2023 – 2027). Participants of the National Workshop also recommended that there should be active engagement of representatives of government institutions involved in infrastructure development in giraffe ranges. The lack of engagement of these stakeholders would lead to Strategic Objective 6 remaining largely untouched.

The implementation of the first edition of the Recovery and Action Plan for Giraffe in Kenya (2018 – 2022), coupled with the IUCN Red List assessment of Masai, Reticulated/Somali and Nubian giraffe between 2018 and 2019 spurred the increase of conservation activities and attention afforded to giraffe. Conservation NGOs partnered with government institutions such as KWS and the newly



formed Wildlife Research and Training Institute (WRTI) to implement many of the activities that were identified in the Recovery and Action Plan. However, it is also important to note that the government institutions spearheaded the first-ever National Census of Wildlife, which provided updated numbers of giraffe, as well as their distribution. A large portion of the activities that were implemented related to conservation research (Strategic Objective 4) as well as human dimensions (Strategic Objective 5). These thematic areas received a lot of attention considering that a large portion of the giraffe range in Kenya occurs in human-dominated landscapes (O'Connor et al. 2019). While infrastructural development still presents a threat to giraffe populations and their habitats, implementation of activities in Strategic Objective 6 was challenging as previously highlighted. Participants also noted that there was a lack of involvement of non-conservation stakeholders who can contribute to the implementation of the Recovery and Action

Plan either monetarily as in the case of corporate partners or by lobbying or enacting measures to protect giraffe.



Fig. 5: Percentages of conservation activities that were implemented compared with those that were not implemented in the first edition of the Recovery and Action Plan for Giraffe in Kenya (2018 - 2022).

As part of the review of the inactive implementation structure of the Recovery and Action Plan for Giraffe in Kenya (2018 – 2022), the National Management Committee outlined in the first edition will be replaced by KWS Senior Management, who meet regularly to address emerging issues in conservation and management of wildlife. Importantly, this will not require the formation of a new framework since the proposed structure is already embedded in KWS functions.

3. THREATS TO GIRAFFE IN KENYA



3.1. Introduction

This section provides an overview of the threats faced by giraffe in Kenya as a rationale for aiding strategic planning and implementation. Giraffe ecology and population dynamics can be influenced by both extrinsic and intrinsic factors. Extrinsic factors include precipitation, human disturbance, habitat disturbance and competition, while intrinsic are such factors like allele effects, stress, intra-specific competition and other density dependent processes (Owen-Smith and Mason 2005, Horak et al. 2007, Périquet et al. 2010). Population dynamics in giraffe can also be influenced by poaching, habitat fragmentation, predation, forage and shift in fecundity (Hayward and Kerley 2005, Kyale et al. 2011, Okello et al. 2015, Said et al. 2016, Muneza et al. 2023).

The threats identified are listed as area specific although many are similar, dependent on the population. Currently, the main threats facing giraffe in Kenya were identified as:

Extrinsic threats

- 1) Habitat loss and fragmentation due to encroachment, modification, destruction, degradation, invasive species, loss of dispersal areas, land-use changes, and insular effects like fencing and infrastructural developments.
- 2) Poaching/illegal hunting snaring, meat (subsistence and trade), hides, bracelets, 'heroism', resource conflicts with humans.
- 3) Electrocution and road kills
- 4) Climate change El Niño & La Niña phenomena (floods, prolonged cyclic droughts, reduced forage, water scarcity).

Intrinsic threats

- 1) Inter-specific competition leading to reduced carrying capacity and reduced food for nutrition.
- 2) Dietary complications toxins and tannin effects
- 3) Disease anthrax, foot ulcers, Giraffe Skin Disease etc
- 4) Inbreeding potential possibly because of population isolation, insularization and loss of migration corridors, thus potentially leading to genetic invariability and loss of genetic vigour in populations.

Habitat loss and fragmentation

The gradual reduction of accessible grazing land for pastoralists and land-use change from pastoral to sedentary lifestyle in core wildlife landscapes presents a major challenge for sustainable ecosystem management in Kenya (Kimiti et al. 2016). Population growth and increased pressure on conservation areas fuels human-wildlife conflict whereby both human and animal lives are lost in addition to crop damage. Additionally, development of tarmacked roads through giraffe habitat have resulted in an increase in the number of wildlife killed by vehicles (Okita-Ouma et al. 2021, Lala et al. 2022). For instance, 129 animals, including 10 giraffe were killed on an 11km stretch of Mombasa Rd, near Kyumvi town in the Athi-Kapiti Ecosystem in 2021. The proposed solution of using fences to cordon off roads and demarcate human settlement areas restricts movements, divides habitats, and also poses a lethal threat to giraffe populations, notably in southern Kenya. Linear infrastructure, including powerlines and fences, particularly poses significant threats to giraffe. Giraffe are known to entangle themselves when attempting to go over fences to access resources in search of forage and mates. It is important to document these instances to help make informed conservation and management policies.

Poaching

Snaring incidences of giraffe have been recorded across Kenya. The transboundary region of southern Kenya and northern Tanzania appears to be a hotspot area for giraffe poaching, despite being one the last strongholds for Masai giraffe (Ogutu et al. 2016, Said et al. 2016). While giraffe are often snared, in many cases they are not the intended target species. Snares are often set in and around protected areas by poachers intending to trap smaller game for subsistence. Giraffe are also targeted using other means including arrows, spears, traps, guns and opportunistic use of fences (Muneza et al. 2018, 2023). In cases where giraffe meat and parts are targeted and sold illegally, one poacher would be able to gain substantial profits after selling a whole giraffe (Ouso et al. 2020). Snare injuries often lead to giraffe mortalities due to difficulty in mobility or permanent injuries in cases where affected animals are maimed – and as such more prone to predation (Mudumba et al. 2020, Bernstein-Kurtycz et al. 2023). Very



few studies have attempted to quantify the proportion of the giraffe populations with snare injuries, but it has been documented that giraffe with snare injuries had a poorer body condition and movement difficulties (Mudumba et al. 2020, Bernstein-Kurtycz et al. 2023). Anecdotal reports from the Wildlife Forensics and Genetics Laboratory indicate that there was a spike in poaching of wildlife, giraffe included, during the onset of Covid-19 pandemic. Thus, there's a crucial need to better monitor poaching incidences and increase anti-poaching efforts, as well as document the socio-economic and cultural importance of giraffe in the country.

Climate change

Since 2020, Kenya has experienced a prolonged dry season, and the rainy seasons of 2021 and 2022 were considered inadequate, resulting in deaths of many species. While giraffe are generally water-independent, 12 giraffe died as a direct result of drought during this period (Mwiu et al. 2022) but it assumed that mortalities of giraffe due to causes indirectly linked to the prolonged dry season (i.e. tannin poisoning, diseases associated with dry conditions) might be higher. However, more monitoring efforts are required to better understand the direct and indirect impacts of drought on giraffe and other species, especially those that are water dependent. Climate change directly affects ecosystems through seasonal increases in air temperatures and changes in precipitation, thus, causing severe droughts and fires (Kangalawe et al. 2011, Singh et al. 2021). With climate change, there will likely be shifts in biodiversity ranges and the distribution of many species. Such changes affect the availability, accessibility, and quality of resources upon which wildlife (and people) rely on. These have implications on protection and management of wildlife, habitats, protected areas and forests (Ocholla et al. 2013, Chaka et al. 2020), such as increased incidences of human-wildlife conflict cases that were observed in Amboseli and Tsavo NPs during the severe drought of 2009 – 2010. Climate change has rendered wildlife more vulnerable to stochastic events and ecological disasters. Understanding the range of natural variability and ecosystem response plays a key role for the future management of ecosystems (Durant et al. 2015, Osipova et al. 2018). Increased incidents of human/wildlife conflict in Amboseli and Tsavo NPs during the 2009/2010 severe drought were observed. Climate change incidents of pests and wildlife disease outbreaks.

Disease

Giraffe are not only at risk due to anthropogenic sources but are vulnerable to disease outbreaks. Giraffe populations have previously been significantly affected by outbreaks of rinderpest (Barrett et al. 2006), anthrax (Kaitho et al. 2013), papillomavirus infection (Karstad and Kaminjolo 1978, Van Dyk et al. 2011) and lumpy skin disease (Woods 1988, Hunter and Wallace 2001). However, the epidemiology and pathology of these diseases are well understood given that they occur in a variety of mammalian taxa. In the past 25 years, new diseases have emerged in giraffe populations and have gained limited conservation and epidemiological attention. Giraffe Skin Disease (GSD) and Giraffe Ear Disease (GED) have been recorded in various giraffe populations across East Africa, though GSD was first observed in Uganda in 1995 (Kalema 1996) and in Tanzania in 2000 (Epaphras et al. 2012). The generic names describing the infections indicate how little researchers know about them (Karimuribo et al. 2011). The causative agent of GSD has been presumed to be a filarial worm but the vector still remains unknown (Han et al. 2022).

3.2. Priority projects of the Second Edition of the Recovery and Action Plan for Giraffe in Kenya (2023 – 2027)

As part of the National Workshop and review of the first edition of the Recovery and Action Plan for Giraffe in Kenya (2018 - 2022), stakeholders identified key projects that require attention to address current and emergent threats that giraffe face. Stakeholders indicated that implementing conservation actions linked to the projects listed below would contribute significantly to achieving the Vision and Goal of the second edition of the Recovery and Action Plan for Giraffe in Kenya (2023 - 2027):

- 1. Provision of water and forage in priority areas that are impacted by drought.
- 2. Assessing the impact of existing and planned infrastructure.
- $\label{eq:constraint} \textbf{3.} \quad \textbf{Enhanced law enforcement in giraffe poaching and illegal trade hotspots.}$
- 4. Community and stakeholder engagement on giraffe conservation issues.
- 5. Identify, investigate, and document diseases affecting giraffe populations across their range.
- 6. Mapping, control, and management of invasive species in giraffe ranges.



Table 2: Identified threats facing the different giraffe species in Kenya.

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ECOSYSTEM	AREA	THREATS
MASAI GIRAFFE	E	
Tsavo	Tsavo West, Tsavo East and Chyulu Hills NPs, South Kitui NR, Galana and Taita Ranches	 Poaching Interspecies competition with elephant Possible hybridisation with reticulated giraffe Climate change: water shortage and prolonged dry periods, invasive plant species Road kills: Nairobi-Mombasa highway and railway Habitat fragmentation and loss: charcoal burning Mining Moats Wildfires
Amboseli	Amboseli NP, OI Gulului/ Lolorashi Group Ranch, Mbirikani Group Ranch, Kuku Group Ranch, Selengei Group Ranch, OI Gulului Trust Land, Kimana Group Ranch, Rombo Group Ranch, Mashuru, Namanga/Magadi	 Poaching Railway kills: Magadi railway line Fence lines Electrocution by power lines Loss of corridors and dispersal areas Limited water access Road kills Habitat loss and fragmentation Land use change Drought
Greater Masai Mara	Masai Mara NR and surrounding conservancies	 Habitat fragmentation and loss Charcoal burning Fencing Poaching Electrocution by power lines Land use change: wheat farming Overgrazing by livestock Road kills: Mai-Mahiu to Narok Moats
Nairobi/Athi- Kapiti	Athi-Kapiti Conservancies and Ranches, Nairobi NP, Athi-Kitengela & Kaputei Plains, Machakos Ranches	 Habitat fragmentation and loss Urban and infrastructure development Charcoal burning Invasive species Poaching Climate change (water shortage) Road kills: Emali – Loitoktok road, Nairobi – Mombasa highway Land use change
Naivasha	Crater Lake, Mundui ranch, Olerai, Oserian Wildlife Conservancy, Hell's Gate NP, Kedong Ranch, Crescent Island, Bushy Island/Yacht Club/Higgins/ Dolier, Marula, Rocco Farm	 Poaching: snaring, bushmeat Land use change Electrocution by powerlines Infrastructure development along Naivasha - Nakuru highway Climate change: water shortage Encroachment into protected areas Pollution Possibility of reduced forage: over-browsing and debarking of Vachellia xanthophoelea trees) Habitat loss and fragmentation: charcoal burning, invasive species Wildlife displacement: geothermal expansion

ECOSYSTEM	AREA	THREATS
MASAI GIRAFF	E	<u>.</u>
Ruma NP		 Poaching: snares Fire Limited space: overabundance Disease
Soysambu Wildlife Conservancy		 Carrying capacity: overabundance Electrocution by power lines Potential inbreeding Invasive species: Lantana camara, Leleshwa (Tarchonanthus camphoratus) Disease Possibility of reduced forage due to debarking of A. xanthophoelea Poaching: snares
Lake Nakuru NP		 Invasive species Pollution Over-browsing: possibility of reduced forage due to debarking of A. xanthophoelea Fire Disease Climate change: lake water level increase
Mwea NR		 Poaching: snares, bows and arrows Habitat loss: invasive species (L. camara)
RETICULATED /	SOMALI GIRAFFE	
Mountain Conservation Area	Samburu Laikipia Isiolo	 Poaching for commercial and subsistence use: firearms, snares, spears Invasive species: Prosopis juliflora Charcoal burning Drought: reduced forage and water shortage Limited conservation efforts Fences Interspecific competition with camels and livestock Disease Bush fires Solid waste pollution (mainly plastic waste) Unsustainable harvesting of gum from Senegalia senegal Military activities Road kills: Isiolo - Marsabit highway, proposed railway line (LAPSSET) Corridor blockage: Isiolo - Samburu Habitat degradation

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4. NATIONAL RECOVERY AND ACTION PLAN FOR GIRAFFE IN KENYA



4.1. Vision and Goal

4.3.1. Vision

To have genetically viable populations of the three species in suitable and secure habitats for posterity and accruing benefits to Kenyans, recognising Kenya's unique heritage.

4.3.2. Goal

To mitigate the threats and maintain a self-sustaining giraffe population through a multi-stakeholder's approach to achieve a net positive population growth by 2027.4.3.3. Strategic objectives

- 1. Enhance protection of giraffe to mitigate current and emerging threats.
- 2. Secure and improve giraffe habitats to ensure long-term survival of populations.
- 3. Ensure effective management of enclosed populations to secure their long-term conservation.
- 4. Ensure coordinated research and monitoring of giraffe populations.
- 5. Enhance community and stakeholder involvement in giraffe conservation to facilitate information exchange, education, and public awareness.
- 6. Ensure infrastructural developments in giraffe ranges are friendly and compatible with their conservation.

4.3.3.Strategic Objectives

Strategic Objective 1: Enhance Protection of Giraffe to Mitigate Current and Emerging Threats

- a. A database of confiscated bushmeat was established and is maintained by the Wildlife Forensics and Genetics Laboratory. Data from 2016 to 2022 indicate that giraffe represent 6% (55 out of 930) of reported poaching cases in the country. There was a noticeable spike in 2019, but the reasons remain unknown (Activity 1.1.1).
- b. Wildlife Forensic and Genetics Laboratory has preliminary data on poaching hotspots and emerging bushmeat markets (Activity 1.1.6).
- c. Several NGOs have trained and equipped community scouts in data collection and raising awareness on the plight of giraffe across the country (Activity 1.1.8)
- d. Ministry of Tourism and Wildlife recruited 5,000 community scouts, but the program was discontinued in February 2023 after the end of the contractual period. The community scouts played a pivotal role in collecting data on wildlife and providing information on poaching hotspots and the reinstatement of the programme would aid significantly in achieving the target of Strategic Objective (Activity 1.1.9).

TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS
1.1. Reduce the proportion of giraffes illegally killed by 50% within 5 years	1.1.1. Establish the current levels of poaching on giraffe	Assessment report highlighting levels of poaching	Year 1	KWS, WRTI, NGOs, research institutions, conservancies
	1.1.2. Collate national giraffe mortality database that includes reported arrests, conflict data, diseases, natural causes, and infrastructure-related mortalities	Assessment report that includes sex, age (adult, subadult, calf), and species of giraffe, location of incident, and cause of mortality	Year 1	KWS, WRTI, community scouts, NGOs

TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS
	 1.1.3. Train and equip first responders on: 1) general scene of crime management that includes chain of custody procedures, evidence handling, preservation and management; and 2) provisions of WCMA 2013 	Number of first responders trained and equipped	Continuous	KWS, WRTI
		Number and type of equipment distributed to first responders		
		Number of hotspot areas represented in trainings		
	1.1.4. Sensitize and train law enforcement and judicial service officers on legal standards of wildlife crime	Number of seminars and workshops	Biannual	KWS, NGOs
	investigations to ensure conviction of prosecution of cases	Number of sentences delivered; Increase in successful prosecution of cases related to giraffe	Continuous	KWS, WRTI, NGOs
	1.1.5. Enhance law enforcement of bushmeat through forensic work	Emerging bushmeat market and traders identified; Bushmeat hotspots mapped	Continuous	KWS, WRTI, NGOs
	1.1.6. Train community, county, and private conservancy scouts/rangers on law enforcement skills	Number of trainings and scouts/rangers trained	Continuous	KWS, community conservancies, NGOs
	1.1.7. Increase numbers of community wildlife scouts/rangers	Additional number of community scouts/rangers recruited, trained, equipped, deployed	Continuous	County governments, private and community conservancies
	1.1.8. Increase community awareness on giraffe conservation through public barazas and learning institutions targeting high risk giraffe areas	Number of barazas, publicity and media programmes held and aired	Annually	KWS, community conservancies, NGOs
		Number of people sensitized		
	1.1.9. Promote giraffe as a flagship species in protected areas, community, and private conservancies	Number of Community conservancies that have adopted giraffe as a flagship species	Annually	KWS, community conservancies
	1.1.10. Promote transboundary conservation initiatives in the giraffe	Number of meetings held	Annually	KWS, WRTI, NGOs. research
	range areas of Tsavo/Mkomazi; Amboseli/Mt. Kilimanjaro; Masai Mara/Serengeti; Kenya/Somalia;	Transboundary and conservation framework developed	Year 2	institutions, Tanzanian, Ethiopian, and Somali
		Number of joint patrols carried out	Monthly	conservation authorities
1.2. Strengthen legislation to support giraffe conservation	1.2.1. Provide input to the review process to appropriately assess and include all three species Schedule 6 of WCMA 2013	All three giraffe species included in Schedule 6 of WCMA and assessed appropriately	Year 1	KWS, WRTI



TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS	
1.3. Develop mechanisms for discouraging bushmeat consumption by rural and urban communities	1.3. Develop mechanisms for discouraging bushmeat consumption by rural and urban communities	1.3.1. Conduct publicity campaigns through written and electronic media to sensitize retailers and consumers on the conservation implications and human health risks of retailing and consuming bushmeatd	Number of pre- and post- sensitization surveys conducted to determine the effectiveness of campaigns	3 years	KWS, WRTI, private and community conservancies, NGOs
		More than 60% of populations within giraffe ranges and markets where giraffe bushmeat is sold sensitize	3 years	KWS, WRTI, private and community conservancies, NGOs	

Strategic Objective 2: Secure and Improve Giraffe Habitats to Ensure Long-term Survival of Populations

- Several NGOs, as well as research offices of various national parks and reserves have collected up-to-date information a. on giraffe in different areas (Activity 2.1.2.).
- Nubian giraffe recently moved onto mainland Ruko Community Conservancy, and future translocations are being planned b. from other populations to increase genetic diversity and promote tourism (Activity 2.2.1.).
- NGOs have undertaken chemical, biological, and mechanical control of prickly pear cactus (Opuntia spp.) which has C. invaded many areas of northern Kenya (Activities 2.3.1. and 2.4.1.).
- d. Several NGOs and KWS maintained waterholes during the prolonged dry season for giraffe and other wildlife, as well as for livestock to use (Activity 2.3.4.)

TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS
2.1. Update the giraffe distribution map for Kenya	2.1.1. Develop giraffe monitoring protocol(s) to guide data collection and collation	Standardised giraffe monitoring and reporting system	6 months	KWS, WRTI, NGOs, conservancies, communities, research institutions
	2.1.2. Collect and collate all available data on giraffe distribution and habitat	Centralized up-to-date database	1 year	KWS, WRTI, NGOs, conservancies, communities, research institutions
	2.1.3. Identify knowledge gaps on giraffe presence and map current and potential giraffe conservation areas	Distribution and habitat map of giraffe in Kenya developed	6 months	KWS, WRTI
	2.1.4. Map and monitor threat hotspots	Threat map produced	1 year	KWS, WRTI, NGOs, conservancies, communities, research institutions



TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS
2.2. Secure new giraffe conservation areas	2.2.1. Implement the recommendations of wildlife migratory corridors dispersal areas report	Corridors, migratory and dispersal areas secured	3 years	KWS, WRTI, conservancies, communities, county governments, Wildlife Corridors Taskforce
	2.2.2. Identify and secure habitats for giraffe conservation and management	Number of areas identified and secured	3 years	KWS, WRTI, NGOs, conservancies, communities, county governments
	2.2.3. Negotiate for conservation compatible land use in identified key giraffe areas	Number spatial plans developed and implemented	3 years	KWS, WRTI, County governments,
		Number of easements, agreements in place		ŇGOs
	2.2.4. Encourage and facilitate the development of new conservancies targeting giraffe conservation	Number of new conservancies established in key giraffe areas	3 years	KWS, WRTI, NEMA, County governments, KWCA, NGOs
		Number of giraffe translocated		
		Number of areas where giraffe have been reintroduced		
2.3. Reduce habitat destruction by	2.3.1. Determine extent of habitat destruction through charcoal burning, firewood harvesting etc	Number of conservation and community areas covered	2 years	KWS, WRTI, NGOs, private and community
promoting alternative livelihoods in giraffe areas	,	Report on extent of habitat destruction through deforestation produced		conservancies
	2.3.2. Encourage, promote, and facilitate eco-tourism development in giraffe areas	Number of eco-tourism facilities established in giraffe range areas	Continuous	KWS, conservancies, Ministry of Tourism, NGOs
	2.3.3. Identify and pilot alternative environmentally sustainable	Number of enterprises piloted	3 years	KWS, WRTI, NGOs,
	livelihoods to supplement household incomes such as non-timber forest products and non-nature-based enterprises	Number of pilot enterprises that have scaled up		conservancies, county governments
	2.3.4. Promote sustainable livestock husbandry practices	Number of livestock husbandry practices adopted	Continuous	KWS, county government, NGOs
		Number of grazing plans developed and implemented		



TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS
2.4. Control invasive species threatening key giraffe habitat	2.4.1. Identify distribution and type of invasive species impacting giraffe and their habitat	Map and list of invasive species impacting giraffe	4 years	KWS, WRTI, research institutions, KALRO, Invasive Species Taskforce, conservancies
	2.4.2. To identify the best technique for controlling invasive species	Analysis report on control techniques of invasive species	3 years	KWS, WRTI, NGOs, conservancies, research institutions
	2.4.3. Control of invasive species impacting giraffe and their habitat using appropriate protocols for target species	Number of areas with invasive species control programmes established	Continuous	KWS, WRTI, research institutions, Invasive
		Success of control programmes		Species Taskforce, conservancies
	2.4.4. Rehabilitation of areas degraded by invasive species	Reduction in area covered by invasive species	4 years	KWS, WRTI, research institutions, Invasive Species Taskforce, conservancies





Strategic Objective 3: Ensure Effective Management of Enclosed Populations to Secure Their Long-term Conservation Important updates from the first edition

- a. KWS veterinarians conduct regular monitoring of wildlife and respond to emergencies, including giraffe (Activity 3.1.1.).
- b. Cranial deformities and tumour swellings have been recorded at increasing frequencies in and around Lake Nakuru NP, and some have necessitated veterinary intervention by KWS.
- c. KWS has facilitated translocations of Nubian giraffe to enrich populations in various protected areas and increase genetic diversity, and more translocations are planned (Activity 3.2.3).

TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS
3.1. To ensure effective management of	3.1.1. Identify diseases affecting giraffe in Kenya	List of diseases and vectors per site established	Continuous	KWS, WRTI, NGOs, research institutions
populations to secure their long- term conservation	3.1.2. Monitor and reduce the incidence of diseases in priority areas	Report on vector dynamics developed	Continuous	KWS, WRTI, NGOs, research institutions
		Number interventions carried out and reports		inettatione
	3.1.3. Monitoring, surveillance, and report on giraffe health conditions on regular basis	Number of reports and research manuscripts on disease occurrences	Continuous	KWS, WRTI, conservancies, NGOs, research institutions
3.2. To ensure genetic diversity of enclosed populations is	3.2.1. Determine the genetic diversity of giraffe populations in Kenya	Number of studies assessing genetic diversity	2 years	KWS, WRTI, conservancies, NGOs, research institutions
maintained	3.2.2. Keep proper records of the translocation history of existing populations	Established protocol, number of records established	1 year	KWS, WRTI, conservancies, NGOs, research institutions
	3.2.3. Translocate giraffe to enrich small populations or depopulate large populations	Number of translocations conducted	Continuous	KWS, WRTI, conservancies, NGOs, research institutions
		Number of giraffe successfully moved		
		Number of post-translocation monitoring reports		
3.3. To determine appropriate carrying capacity for enclosed	3.3.1. Develop a protocol for determining ecological suitability and carrying capacity in giraffe areas	Protocol developed	1 year	KWS, WRTI, NGOs, research institutions
μομαιαιοτις	3.3.2. Determine the ecological carrying capacity for enclosed populations	Number of areas assessed	3 years	KWS, WRTI, conservancies, NGOs, research institutions
	3.3.3. Determine the ecological impacts of exceeding carrying capacity in relation to forage availability and dietary deficiencies	Number of studies on carrying capacity ecological impacts	4 years	KWS, WRTI, conservancies, NGOs, research institutions



TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS
	3.3.4. Undertake studies to determine reasons for debarking of trees by Nubian and Masai giraffe in Nakuru County	Number of reports and publications produced	3 years	KWS, WRTI, conservancies, NGOs, research institutions
3.4. To manage impacts of accidental fires on giraffe habitats	3.4.1. Fire management incorporated in habitat management plans	Sites with fire management as part of habitat management plans	Annually	KWS, WRTI, conservancies





Strategic Objective 4: Ensure Coordinated Research and Monitoring of Giraffe Populations

- a. Demographic surveys of giraffe have been conducted in various conservation areas, resulting in better understanding of their distribution and population structure in different areas (Activity 4.1.1.).
- b. National census of wildlife, coordinated by KWS and WRTI, conducted in 2021 and another is planned (Activity 4.1.2.).
- c. NGOs have been training community scouts on collecting giraffe data and assessing threats to giraffe in different areas (Activity 4.1.3.).
- a. Pattern recognition software and GPS satellite units have been used in Kenya to monitor different giraffe populations since 2017 (Activity 4.2.1.).
- b. KWS and GCF collected tissue samples of giraffe across the country to assess the taxonomic diversity of giraffe in Kenya, whereby preliminary results showed that there was no gene flow between the different populations , providing the strongest proof yet that there exists four extant species of giraffe (Activity 4.2.2.).
- c. Countrywide protocol for giraffe immobilization and translocation developed by KWS (Activity 4.2.4.).

TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS
4.1. Create effective structures for coordinating research, monitoring, conservation, and	4.1.1. To identify knowledge gaps on giraffe ecology, biology, and ethno cultural values	Literature review report (list of areas of interest), number of publications	1 year	KWS, WRTI, conservancies, NGOs, research institutions
management	4.1.2. Coordinate targeted surveys in areas with missing or out-of-date data and	Report on conservation status of each giraffe species updated and shared with stakeholders	3 years	KWS, WRTI, DRSRS, NGOs, conservancies, research institutions
		National census report completed and made available		
	4.1.3. Train community scouts on collecting data on giraffe	Number of training workshops organised	3 years	KWS, WRTI, DRSRS, NGOs, conservancies, research institutions
	monitoring	Number of community scouts equipped and trained for collecting data on giraffe populations and their monitoring		
		Number of reports generated by community scouts		
	4.1.4. Establish an inventory database of giraffe populations	Protocol for database use developed and distributed	2 years	KWS, WRTI, NGOs, conservancies, research institutions
		Functional database established and maintained		
		Number of collaborating institutions adopting central database/website		

TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS
4.2. To better understand giraffe ecology in Kenya by using scientific data and evidence-based information	4.2.1. Adopt technology to determine priority areas for giraffe conservation	Priority for giraffe conservation identified	2 years	KWS, WRTI, NGOs, conservancies, research institutions
		Number and type of technologies adopted for giraffe conservation		
		Number of studies on spatial ecology of giraffe		
	4.2.2. Examine genetic	Number of areas sampled	2 years	KWS, WRTI,
	uversity of girane	Number of samples collected and analysed		conservancies, research
		Report and manuscripts on giraffe genetic diversity in Kenya		Institutions
	4.2.3. Assess, and as appropriate, develop site-	Habitat suitability studies completed and reported	4 years	KWS, WRTI, NGOs, conservancies, research institutions
	following IUCN guidelines for identified giraffe conservation areas	Sensitisation programme conducted among local communities affected including community attitudes survey		
		Source animals identified (sex, age, number, genetic relatedness)		
		Disease risk analysis carried out		
	4.2.4. Develop and implement post-release and post-tagging monitoring schedules	Monitoring reports produced semi-annually areas	Semi- annually	KWS, WRTI, NGOs, research institutions





Strategic Objective 5: Enhance Community Involvement in Giraffe Conservation to Facilitate Information Exchange, Education and Public Awareness

- a. Several conservancies in northern Kenya have been formed and adopted giraffe as a flagship species and registered via the North-Eastern Conservancies Association (NECA) (Activity 5.1.3.).
- b. NGOs have trialled eco-friendly products such as soaps and dyes, as well as juice and biogas from prickly pear cactus (Opuntia spp.) to derive income for surrounding communities and control the invasive species in northern Kenya (Activity 5.2.1.).
- c. Several giraffe conservation stakeholders have initiated outreach programmes in communities and schools to raise awareness on the issues that giraffe face throughout their range (Activity 5.3.3.).
- d. World Giraffe Day has gained popularity in Kenya and has been officially celebrated by the County Government of Wajir and more than 600 community members in Ruko Community Conservancy participated in celebrations for 2022, with support from Twiga Walinzi (Activity 5.3.6.).

TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS
5.1. Support community initiatives to establish conservancies in critical giraffe range areas	5.1.1. Identify and document areas that are suitable for giraffe conservancy establishment	Assessment report and map produced	1 year	KWS, WRTI, County Governments, local community leaders, NGOs
	5.1.2. Mobilise community scouts for training on giraffe conservation	Number of training workshops	Continuous	KWS, WRTI, NGOs, research
		Number of community scouts trained		institutions, conservancies
	5.1.3. Promote giraffe as a flagship species in protected areas, and community and private conservancies	Number of conservancies or reserves that have adopted giraffe as a flagship species	3 years	KWS, County Governments, NGOs
5.2. Promote adoption of alternative livelihoods	5.2.1. Identify and support adoption of sustainable livelihoods options to supplement household incomes	Number of alternative livelihoods projects initiated	Continuous	KWS, NGOs, County Governments, conservancies
areas to reduce reliance on giraffe products and habitat destruction	5.2.2. Identify and pilot alternatives to charcoal and fuelwood in giraffe areas e.g. energy saving cooking stoves/jikos	Number of alternatives energy sources to charcoal and firewood identified and piloted	4 years	KWS, WRTI, County Governments, NGOs, research institutions
	5.2.3. Initiate Corporate Social Responsibility (CSR) projects in giraffe range areas	Number of CSR projects undertaken	Continuous	KWS, WRTI, NGOs, County Governments, corporate institutions

TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS
5.3. Increase public awareness about giraffe conservation at	5.3.1. Design, produce and distribute giraffe conservation audio-visual awareness material	Number of brochures, newsletters, posters, fact sheets disseminated	Continuous	KWS, WRTI, NGOs, research institutions
national and local level		Number of people reached		conservancies
	5.3.2. Conduct media campaigns highlighting giraffe conservation issues and status in Kenya	Number and type of media campaigns in print and electronic formats conducted	Continuous	KWS, WRTI, NGOs, media companies, research institutions
	5.3.3. Conduct outreach programs in schools, communities, youth groups, law enforcement, and religious	Number of outreach activities conducted	5 years	KWS, County Council, Government
	institutions as appropriate Number of people reached	Number of groups reached		NGOs
		Map of areas covered		
	5.3.4. Conduct community barazas on importance of giraffe conservation	Number of barazas held per year	5 years	KWS, County Council, Government, NGOs
	5.3.5. Sponsor sports and drama festivals i.e. poems, drama, songs,	Number of events sponsored	Continuous	KWS, WRTI, NGOs, County
	information	Number of institutions involved		Governments, conservancies
	5.3.6. Plan and coordinate World Giraffe Day annually on 21 June	Number of activities done to mark World Giraffe Day in giraffe ranges	Annually	KWS, WRTI, NGOs, County Governments, conservancies
	5.3.7. Disseminate giraffe conservation research findings and policies to schools	Number of barazas held	Continuous	KWS, WRTI, NGOs, County
	and communities through barazas and simple conservation messaging	Number of institutions involved		Governments, conservancies, research
		Number of people reached		researcn institutions



Strategic Objective 6: Ensure Infrastructural Developments in Giraffe Ranges Are Friendly and Compatible with Their Conservation

- a. Garissa County Government and Somali Giraffe Project organises Road Safety Week once every month to raise awareness on wildlife mortalities due to collisions with vehicles (Activity 6.2.2.).
- b. Several NGOs conduct roadkill surveys to monitor number of animals, including giraffe, killed due to collisions with vehicles or trains (Activity 6.4.1.).
- c. Human deaths have been recorded as a result vehicles colliding with wildlife, further highlighting the need to develop and strengthen safety guidelines for the protection of humans and wildlife.

TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS	
6.1. Develop a database of infrastructure projects that pose	6.1.1. Identify the state and private actors whose infrastructure projects pose risk to giraffe	Number of state and private infrastructure developers identified and listed	6 months	KWS, WRTI, NGOs, research institutions	
giraffe conservation	6.1.2. Create map of existing and planned infrastructure that pose risk to giraffe	Number of regional, county, and national risk maps developed	1 year	KWS, WRTI, NGOs, County Governments, research institutions	
6.2. Create awareness to state and private actors involved in development of infractructure that	6.2.1. Hold stakeholder workshops to create awareness and gather data on impact of infrastructure on giraffe	Number of awareness creation workshops held	1 year	KWS, WRTI, NGOs, County Governments, relevant institutions	
infrastructure that pose threats to giraffe	6.2.2. Undertake campaigns using relevant platforms to raise awareness on likely negative impacts of infrastructure projects which do not consider giraffe conservation	Number and types of campaigns undertaken	1 year	KWS, WRTI, NGOs, County Governments, relevant institutions	
6.3. Develop and share with	6.3.1. Hold consultative workshops and seminars to develop provide relevant data and information on important	Number of workshops held	1 year	KWS, WRTI, KENHA, KPLC,	
authorities the guidelines on important aspects to be considered when designing infrastructural	considerations during design and development of infrastructural projects	Guidelines developed		KRC, NEMA, County	
	6.3.2. Integrate giraffe safety standards in new infrastructure development designs	Number of documents prepared and shared with stakeholders.	3 years	NGOs, Research institutions,	
within giraffe range areas		Number of new infrastructure development projects conforming to safety guidelines		conservancies	

TARGET	ACTIVITY	INDICATOR	TIMELINE	ACTORS
6.4. Minimise the proportion of giraffe mortality related to infrastructural developments by 70%	6.4.1. Undertake an inventory of infrastructure (pylons, roads, moats) reported to pose risk to giraffe in specific sites	An inventory of specific cases infrastructure reported to be a risk to giraffe in respective sites	Continuous	KWS, WRTI, KENHA, KPLC, KETRACO, KRC, NEMA, County Governments, NGOs, conservancies, Research institutions
	6.4.2. Work with Ministry of Roads and Transport, KENHA, KRC, NEMA, KETRACO and KPLC on installation of signage, bumps, underpasses,	Number of compliant agencies or infrastructure development projects	Continuous	KWS, WRTI, KENHA, KPLC, KETRACO, KRC, NEMA, County Governments, conservancies
	overpasses on roads and railway lines in giraffe range areas	Number of signage installed and speed bumps erected		
		Number of underpasses or overpasses installed		
	6.4.3. Use emerging technologies like proximity sensors, LiDAR, geo- fencing among others to develop early warning systems along areas that pose high risk to giraffe	Number of and type of technologies adopted in developing early warning systems	Continuous	KWS, WRTI, KENHA, KPLC, KETRACO, KRC, NEMA, County Governments, NGOs
	6.4.4. Support construction of giraffe-friendly fence designs and improvement of existing fence lines that poce high rick to giraffe	Number of new giraffe- friendly fence lines constructed	Continuous	Conservancies, Research institutions
	that pose high risk to giraffe	Number and length of already existing fence lines improved to giraffe-friendly status		





Key Projects

In addition to the routine giraffe conservation and management activities undertaken by KWS with support from stakeholders, the following projects will be prioritised:

#	STRATEGIC OBJECTIVE	PROJECT	BUDGET ESTIMATE (KES)
1	Enhance Protection of Giraffe to Mitigate Current and Emerging Threats	1. Establish a database on giraffe poaching and bushmeat hotspots to inform law enforcement efforts	KES 1,500,000 to develop in year 1 then KES 750,000 annually to host site specific workshops to harmonize and update the data from various stakeholders on various causes of giraffe mortality
		2. Undertake targeted overt and covert operations in identified and emerging giraffe bushmeat hotspots	KES 1,500,000 annually
		3. Support to the forensic laboratory to profile the bushmeat	KES 1,250,000 annually
		4. Undertake targeted de-snaring operations in identified hotspots	KES 1,500,000 annually
2	2 Secure and Improve Giraffe Habitats to Ensure Long-term Survival of Populations	5. Giraffe translocations to enhance habitat management	3,000,000 annuallyKES
		6. Control of invasive plant species in identified sites	KES 5,000,000 annually to be distributed among the identified priority areas
		7. Interventions to support giraffe during periods of severe drought	KES 5,000,000 annually to be distributed among the identified priority areas
		8. Giraffe collaring to provide updated data on habitat utilisation	KES 3,500,000 annually targeting 10 giraffes/year in identified sites
		9. Site specific programs to monitor habitat utilisation by giraffes	KES 3,000,000 annually
3	Ensure Effective Management of Enclosed	10. Giraffe translocations to enhance genetic diversity	KES 3,000,000 annually
	Populations to Secure Their Long-Term Conservation	11. Implementation of site-specific habitat and population management programs in identified sites	KES 2,500,000 annually
		12. Veterinary interventions to respond to identified conditions	KES 1,500,000 annually



#	STRATEGIC OBJECTIVE	PROJECT	BUDGET ESTIMATE (KES)
4	Ensure Coordinated Research and Monitoring of Giraffe Populations	13. Surveys to update population status	KES 4,500,000 *2 surveys during the 5-year plan period
		14. Training of rangers and community scouts on collecting giraffe data on key aspects	KES 1,500,000 annually
		15. Collection of samples during planned interventions and opportunistically to answer specific research questions	KES 500,000 annually
5	Enhance Community Involvement in Giraffe Conservation to Facilitate Information Exchange,	16. Undertake site specific activities to observation the World Giraffe Day on 21st June to enhance awareness on the plight of giraffe	KES 3,500,000 annually
	Education and Public Awareness	17. Support to community scouts in giraffe monitoring	KES 500,000 annually
6	Ensure Infrastructural Developments in Giraffe Ranges are Friendly and Compatible with Their	18. Monitoring of infrastructure related mortalities to identify hotspots and suggest implementation of appropriate mitigation measures to the concerned agencies	KES 1,000,000 annually
	Conservation	19. Provide relevant data and information during stakeholder engagement on infrastructure development project to influence adoption of giraffe friendly designs at identified critical areas	KES 1,500,000 annually
		20. Collaborate with relevant agencies to conduct road safety campaigns in identified hotspots e.g. Road Safety Week	KES 1,000,000 annually
		21. Host infrastructure and conservation workshop in in liaison with other species technical committees targeting agencies mandated to develop infrastructure projects such as roads, railway, and power projects	KES 1,500,000 for the workshop, then KES 1,000,000 annually to support implementation of identified mitigation measures
		TOTAL	KES 221,250,000.00

5. IMPLEMENTATION OF THE SECOND EDITION OF THE NATIONAL RECOVERY AND ACTION PLAN FOR GIRAFFE IN KENYA





5.1. Endorsement

Once completed, the National Recovery and Action Plan for Giraffe in Kenya (2023 – 2027) will be launched officially with the relevant stakeholders invited to secure the necessary support required for its implementation.

5.2.1 Implementation, Responsibilities and Control

KWS will be the overall implementing authority of the National Recovery and Action Plan for the Giraffe. The implementation will be overseen by KWS Senior Management, reporting to the Director General KWS namely: Director Wildlife and Community Service-D W&CS (Chairman), Deputy Director Conservation Science (DD CSP), Deputy Director Community Relations and Education Service (DD-CR&ES and Deputy Director Wildlife Security (DD WS) and Head Veterinary and Capture Services (H V&CS). The KWS senior management shall guide on major decisions, liaison with the Ministry, relevant government agencies and partners. Specific matters related to giraffe conservation will be presented during the scheduled senior management meetings.

The Giraffe Technical Committee has been reconstituted will be reconstituted as shown in Appendix 3, with the main purpose of acting as an technical advisory body composed of giraffe experts, veterinarians, community representatives, conservancy and ranch managers and NGO representatives. The Technical Committee will be chaired by the KWS Director Wildlife and Community Service and Deputy Director Conservation Science (alternate Chair). The Giraffe Technical Committee at least twice per year either physically or virtually coordinated by the KWS Head Species Programs.

At a local level, there shall be 3 Range Committees namely Masai, reticulated/Somali and Nubian/Rothschild's. The Range Committees will be tasked with the responsibility of coordinating the implementation of the National Recovery and Action Plan and will articulate the needs of each giraffe species and as such, each committee will develop a species-specific Action Plan. Regional (geographic) Sub-Committees will be grouped together, and the formulation of Range Committees will be included in the National Recovery and Action Plan. The Range Committees will be composed of the respective Conservation Area Senior Assistant Directors (SADs) (Chair), Park/County Assistant Director supported by respective Principal Scientist WRTI (Coordinator/Secretary), relevant government agencies, community representatives, conservancy managers, NGO representatives, research institutions and other relevant stakeholders.

There will be a secretariat drawn from KWS, WRTI and NGOs with specific focus on Giraffe at a national level to follow up on the implementation of the plan, coordinating Technical Committee and Range Committees. The secretariat will also centralize information from across the country.





Fig. 6: Implementation structure of the National Recovery and Action Plan for Giraffe in Kenya (2023 – 2027).

Species-specific Action Plans

The secretariat shall support range committees to develop and implement species-specific action plans in line with the National Recovery and Action Plan. The planning process should be inclusive and involve all relevant stakeholders to gain the required support. This process will also help create ownership of the Plan at grassroots level.

The Species-specific Action Plans will guide the development of annual implementation plans with budgets. The secretariat shall keep track of implementation through range committee reports and other giraffe specific reports shared with management. The range committees shall review progress annually with the support of the secretariat and line with the established monitoring and evaluation framework.

Monitoring and Evaluation of the Recovery and Action Plan

To track progress and assess performance on implementation of the identified activities against the set targets and objectives, there will be need to undertake monitoring and evaluation annually, midterm and end-term evaluation. This process will help to integrate emerging issues and undertake appropriate adjustment based on the lessons learned.

The monitoring and evaluation component of this Recovery and Action Plan will draw from the guidelines set in the KWS and National Government's Monitoring and Evaluation Policy. Performance monitoring and evaluation shall be the responsibility of those involved in the implementation of the Recovery and Action Plan as well as key projects.

The secretariat, supported by the Giraffe Technical Committee will undertake the monitoring and evaluation and reporting at the national level and provide support to the range committees. Progress reporting will be based on annual plans. The monitoring and evaluation (M&E) framework will have three components:

Setting performance targets: the Range Committees will set performance targets every year as part of their annual implementation plans, derived from the Recovery and Action Plan log frame.



Monitoring performance: involves monitoring progress towards implementation of set targets based on the performance indicators and available resources. This will help to identify challenges encountered and propose how the identified challenges are to be addressed before the next phase of implementation.

Performance evaluation: annual evaluation of the Recovery and Action Plan, and implementation plans are important to determine if the intended results have been achieved, and the required resources are in place. Agreed performance targets and indicators at all levels will be used as benchmarks for the evaluation. The outcome of the annual evaluation will form the basis for implementing activities and outputs for the following year. Mid-term and end-term evaluation will be undertaken to evaluate if the set targets were achieved.

Goal: To mitigate the threats and maintain a self-sustaining giraffe population through a multi-stakeholder's approach to achieve a net positive population growth by 2027.

The baseline for the M&E on national high-level activities will be based on the end-term review report of the first edition of the Recovery and Action Plan undertaken in January 2023. The main areas of focus will be as follows:

- 1. Reducing the proportion of giraffe illegally killed by 50% within five years.
- 2. The three species of giraffe included in the revised Schedule 6 by providing input to the review of process of the WCMA 2013.
- 3. Mapping of giraffe poaching and bushmeat hotspots to target enforcement efforts.
- 4. Update the giraffe distribution map.
- 5. Support initiatives to secure giraffe populations and habitats.
- 6. Control invasive species threatening key giraffe habitat.
- 7. Enhance genetic diversity of enclosed populations through targeted translocations.
- 8. Determine giraffe carrying capacity for enclosed sites.
- 9. Establish a well-coordinated framework for giraffe research, monitoring and management.
- 10. Updated scientific data and evidence-based information to inform management decisions.
- 11. Increase public awareness on the plight of giraffe at national and local level.
- 12. Establish an inventory of infrastructure development which pose significant risk to giraffe.
- 13. Engagement with stakeholders involved in development of infrastructure that might pose threats to giraffe to inform their design in identified areas.

STRATEGIC Objective	TARGET	INDICATOR	VERIFICATION	RISKS AND/OR Assumptions
1. Enhance Protection of Giraffe to Mitigate Current and Emerging Threats	Reducing the proportion of giraffe illegally killed by 50% within 5 years	Percentage reduction in illegally killed	Giraffe security reports	Lack of support from key stakeholders to manage the illegal killing of giraffe
	The three species of giraffe included in the revised Schedule 6 by providing input to the review of process of the WCMA 2013	The three species included in the revised Schedule 6 of the WCMA	Gazette notice on the revised WCMA	Revision will be adopted
	Mapping of giraffe poaching and bushmeat hotspots to target enforcement efforts	Poaching and bushmeat hotspots map produced	Map available	Funds will be available to undertake the mapping.

STRATEGIC Objective	TARGET	INDICATOR	VERIFICATION	RISKS AND/OR Assumptions
2. Secure and Improve Giraffe Habitats to Ensure Long- term Survival of Populations	Update giraffe distribution map	Survey reports	Updated map	Lack of support from partners and stakeholders
	Support initiatives to secure giraffe populations and habitats	Number of initiatives supported	Report on the initiatives	Lack of support from landowners
		Total area secured		
	Control invasive species threatening key giraffe habitat	Number of acres mapped and controlled	Report on invasive species control	Funds will be available to undertake the mapping and control
3. Ensure Effective Management of Enclosed Populations to Secure Their Long-term Conservation	Enhance genetic diversity of enclosed populations through targeted translocations	Number of giraffe translocated	Translocation reports	Lack of support from landowners and decision makers
		Number of new areas with founder population		Lack of finances to undertake the translocations
	Determine giraffe carrying capacity for enclosed sites	Enclosed ecosystems established and their carrying capacity of calculated	Carrying capacity reports	Funds will be available to undertake the carrying capacity assessments
				Requisite technical capacity is available to undertake the carrying capacity assessments
4. Ensure Coordinated Research and Monitoring of Giraffe Populations	Establish a well- coordinated framework for giraffe research, monitoring, and management	A coordinated framework in place	Reports on implementation of the coordinated framework	Lack of support from partners and stakeholders
	Updated scientific data and evidence-based information to inform management decisions	Number of priority research reports informing management	Status reports and peer-reviewed publications	Funds will be available to undertake targeted research and monitoring
6. Ensure Infrastructural Developments in Giraffe Ranges are Friendly and Compatible with Their Conservation	Establish an inventory of infrastructure projects which pose significant risk to giraffes	Inventory of infrastructure projects pose significant risk to giraffes	Inventory report	Lack of support from stakeholders and partners
				Lack of funds to undertake the inventory
	Engagement with stakeholders involved in development of infrastructure that might pose threats to giraffe to inform their design in identified areas	Number of engagement meetings	Meeting proceedings and reports	Lack of support from stakeholders and partners
		Number of stakeholders engaged		



APPENDICES



Appendix 1 Giraffe Factsheet (Source: Giraffe Conservation Foundation (2023))

PARAMETER	INFORMATION
Height (average adult)	♂ 5.3m (17ft. 4 in) ♀4.3m (14ft. 2 in)
Weight (average adult)	් 1,200kg ඉ 830kg
Largest	ਾ recorded at 6m (19+ ft)
Heaviest	ਾ recorded at 1,900kg
Foot size	30 cm diameter.
Hoof:	් 20cm (8in); ♀ 18cm (7in) (average).
Defence	Forelegs and hind legs can deliver a lethal kick. They can kick in all directions.
Speed	50kph for sustained periods; calves less than 3m high can outrun adults.
Means of feeding	Browsing, with a prehensile tongue (50cm long) and upper lip.
Diet	Tree leaves, fruits, pods and shoots.
Senses	Colour vision, acute sense of smell, good hearing.
Sleep	4.5 hours, mainly at night; either standing or lying down.
Longevity	+/- 25 years (average)
Social behaviour	Ranges from solitary (often older males) to large, loose, and mixed herds. Known as fission- fusion society, whereby individuals or smaller groups readily merge with or split from the herd; differs from one population to another.
Sex ratio	Very close to 1:1 (average)
Age at sexual maturity	\circ 3–4 years; in oestrus 1 day every 2 weeks. \circ Restricted by competition from larger bulls.
Breeding lifetime	Throughout life; \wp recorded mating within weeks of giving birth.
Gestation	+/- 15 months (453–464 days)
Offspring	Single calf, rarely twins; known to stay with mother until 22 months old, but often independent much sooner, depending on the gender.





Appendix 2 Historical distribution of giraffe in Kenya 1970's - 2020's (Source: DRSRS)

Fig. 7. 1970's Giraffe distribution



Fig. 8. 1980's Giraffe distribution



Fig. 9. 1990's Giraffe distribution



Fig. 10. 2000's Giraffe Distribution



Appendix 3: National Giraffe Technical Committee

	NAME	ORGANISATION	
1.	KWS	Director, Wildlife and Community Service (Chair)	
2.	KWS	Deputy Director, Conservation Science (Alternate Chair)	
3.	KWS	Head Veterinary and Capture Services	
4.	KWS	Senior Assistant Director, Community Relations and Outreach	
5.	WRTI	Principal Scientist, Population and Habitats Dynamics	
6.	WRTI	Principal Scientist, Savannah Ecosystems	
7.	Dr. Arthur Muneza	Giraffe Conservation Foundation (GCF)	
8.	Mr. Nathan Gichohi	African Wildlife Foundation (AWF)	
9.	Mr. Mohammed Sharmake	NECA (community representative)	
10.	Mr. Emmanuel Ngumbi	African Fund for Endangered Wildlife (AFEW)	
11.	Mr. Symon Masiaine	Twiga Walinzi	
12.	Dr. Ali Hussein	Somali Giraffe Project	
KWS (Species Department), WRTI (Population and Habitat Dynamics Department) & NGO with giraffe as a species of focus (GCF) will form the Secretariat. The committee will co-opt expertise on an as-needs-basis.			



Appendix 4: List of participants at the National Workshop (11 January 2023 to 12 January 2023), Naivasha

NAME	INSTITUTION	EMAIL	
1. Stephen Mwiu	WRTI	smwiu@wrti.go.ke	
2. Janet Kavutha	GCF	janet@giraffeconservation.org	
3. Rose Malenya	KWS – AD	Laikipiarmalenya@kws.go.ke	
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