POLICY GUIDELINES FOR WILDLIFE CENSUSES IN KENYA

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ACRONYMS AND ABBREVIATIONS

CAK	Conservation Alliance of Kenya
DGC	Data governance committee
DRSRS	Department of Resource Survey and Remote Sensing
DTA	Data transfer agreement
GPS	Global Positioning System
IDMS	Integrated data management system
IPR	Institute of Primate Research
KEMFRI	Kenya Marine and Fisheries Research Institute
KENTTEC	Kenya Tsetse and Trypanosomiasis Eradication Council
KWCA	Kenya Wildlife Conservancies Association
KWS	Kenya Wildlife Service
NACOSTI	National Commission for Science, Technology and Innovation
NGO	Non-Governmental Organisation
NMK	National Museums of Kenya
OIE	World Organization for Animal Health
PAC	Problem Animal Control
WCMA	Wildlife Conservation and Management Act
WRTI	Wildlife Research and Training Institute

DEFINITION OF TERMS

This section defines technical terms mostly used in the text to make it easier for readers to understand the policy guidelines better without having to make reference to a second document or other literature. Many of the definitions are based on those provided in most wildlife ecology as well as wildlife conservation and management books. Citations for other sources are provided with the definition.

Terminology	Definition	Reference
Accuracy	Measures precision and bias of estimators. A sample-based estimator is considered accurate when multiple sampling trials give a very similar answer that on average is the same as the true value for the parameter of interest	Williams *et al.*, 2002
Adaptive management	A structured process that promotes flexible, informed decisions that allow us to make adjustments as we better understand outcomes from management actions and other events. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process (see Monitoring to inform management below;	Williams and Brown 2012
Attribute	A feature or process of the environment that can be measured or estimated and that provides insights into the state of a resource or related ecological indicator	Elzinga *et al.*, 2001

Terminology	Definition	Reference
Bias	The difference between the expected value of an estimator and the parameter it is meant to estimate. Biased statistics either overestimate or underestimate the true value.	United States Fish and Wildlife Service, 2013
Data	Raw or unorganised facts (such as alphabets, numbers or symbols) that refer to or represent, conditions, ideas, or objects, symbols or signals that are input, stored that need to be processed to make it useable.	United States Fish and Wildlife Service, 2013
Data dictionary	Centralized repository of information about data such as meaning, relationships to other data, origin, usage, and format	United States Fish and Wildlife Service, 2013
Detectability	The conditional probability that an individual from a population will be observed or captured on a sampling unit, given that the species is present	Vesely *et al*., 2006
Indicator	Indirect measure of a biotic or abiotic resource or process targeted in a survey	Elzinga *et al*., 2001
Influential scientific information	To be considered influential, scientific information must be based on objective and quantifiable data and constitute a principal basis for substantive positions adopted by WRTI. Information is influential if the same decision would be difficult to arrive at if that information was absent.	United States Fish and Wildlife Service, 2013
Initial survey instructions	Notes or other materials describing survey objectives or some of the procedures used to conduct a Refuge System survey. The term used to describe the initial phase of survey protocol development in WRTI policy.	United States Fish and Wildlife Service, 2013

Terminology	Definition	Reference
Inventory	A survey that estimates the presence, abundance, or distribution of species, habitats, ecological communities, or abiotic features at a particular time.	United States Fish and Wildlife Service, 2013
Inventory and Monitoring Plan	A plan required by Institute policy documenting the surveys that a scientist selects to implement	United States Fish and Wildlife Service, 2013
Metadata	Description of the content, quality, history, condition, and other characteristics of recorded information. WRTI Scientists must create metadata that meets specific standards for newly collected or produced geospatial and biological data.	United States Fish and Wildlife Service, 2013
Monitoring	A survey repeated through time to document changes in select attributes of wildlife, plants, habitats, ecological communities, or abiotic resources	United States Fish and Wildlife Service, 2013
Baseline Monitoring	Monitoring that is not tied to specific predictions of how a natural resource will respond to management or environmental stressors, but instead is designed to document change over time of a natural resource. Also referred to as surveillance monitoring, examples include monitoring climatic parameters, species population trends over time, disease incidence, contaminants, and wilderness character.	United States Fish and Wildlife Service, 2013
Monitoring to Inform Management	Monitoring to assess whether a natural resource is approaching or exceeding a defined threshold or if a resource is responding to a management action or system stressor in a specified manner. This type of monitoring involves defining the threshold values	United States Fish and Wildlife Service, 2013

Terminology	Definition	Reference
	or expected response, then surveying to measure the response or a closely related indicator. Comparing monitoring results with these expected values may indicate the need for initiating, intensifying, or altering management actions. In these guidelines, it generally means monitoring in an adaptive management context to improve management or evaluate progress toward achieving management objectives. Also referred to as targeted monitoring.	
Objective, management	A concise statement of desired outcomes that specifies what we want to achieve, how much we want to achieve, when and where we want to achieve it, and who is responsible for achieving it.	United States Fish and Wildlife Service, 2013
Objective, sampling	Specifies target levels of accuracy required to reliably interpret the data collected in a survey. These targets determine the level of rigor needed to meet the objectives.	United States Fish and Wildlife Service, 2013
Parameter	A summary value for a variable measured on the sampling units in the sample frame. Examples include the population mean and variance.	United States Fish and Wildlife Service, 2013
Power (statistical)	The probability of detecting an effect given that there is an effect of specified magnitude. Power calculations require specifying sample size, variability in the data, the specific statistical test, the alpha level, as well as the magnitude of the assumed true effect.	United States Fish and Wildlife Service, 2013

Terminology	Definition	Reference
Precision	Variability of measurements within or among samples. The standard error and the coefficient of variation often are used to quantify precision of a parameter. Precision contrasts with bias, which focuses on how the average sample estimate differs from the true value.	United States Fish and Wildlife Service, 2013
Guidelines	Detailed instructions for conducting a survey. This includes information on sampling procedures, data collection, management and analysis, and reporting of results. In this handbook the term guidelines refers to either a census guidelines framework or a site-specific or species-specific survey guidelines	United States Fish and Wildlife Service, 2013
Information	Data processed, organized, structured or presented in a given context so as to make it useful. It includes all records held by a public entity or a private body, regardless of the form in which the information is stored, its source or the date of production.	United States Fish and Wildlife Service, 2013
Inventory	The resources found in a national park, reserve, sanctuary and conservancy.	United States Fish and Wildlife Service, 2013
PRIMPA	A database for Planning and Review of Inventory and Monitoring at Protected Area (PRIMPA). This database describes and archives the surveys conducted on the protected areas, and can be a tool to generate summaries for an Inventory and Monitoring Plan.	United States Fish and Wildlife Service, 2013

Terminology	Definition	Reference
Protected area	Any unit of the National Wildlife Protected Areas System, including terrestrial and marine parks, reserves, sanctuaries, conservancies, wetland areas, and associated waterfowl production areas.	United States Fish and Wildlife Service, 2013
Reliability	Confidence in the information for making decisions. Reliability is determined by several factors including precision of estimates, scientific rigor of the survey and how data are collected.	United States Fish and Wildlife Service, 2013
Resolution.	The ability to distinguish different objects or elements from a background. Clarity or graininess of an observation	Forman, 1995
Rigor	The standard of quality in the effort invested to obtain results. Survey rigor is derived from the level of effort, scientific and technical expertise, and intensity devoted to planning and gathering data.	United States Fish and Wildlife Service, 2013
Sample size	The number of units within the sample frame that are selected for sampling. Sample frame. The collection of all possible sampling units from which the sample is selected; used to estimate the chance of selecting a sample unit.	United States Fish and Wildlife Service, 2013
Sampling units	The units that are selected for collecting data in survey; these units may include individual organisms, quadrats, transects or points on a map.	United States Fish and Wildlife Service, 2013
Standard Operating Procedure (SOP)	A written document or instruction detailing all relevant steps and activities of a process or procedure (paraphrased from EPA 2007).	United States Fish and Wildlife Service, 2013

Terminology	Definition	Reference
Summary Statistic	A summary of measurements from a sample that estimates a parameter. Survey. A specific data-collection effort to complete an inventory or conduct monitoring of biotic or abiotic resources.	United States Fish and Wildlife Service, 2013
Survey Coordinator	A Service employee, usually the Scientist, who oversees the implementation of one or more surveys selected in an IMP. This includes selection of survey protocols that adhere to standards of scientific excellence. The survey coordinator also ensures that survey data are managed, analyzed and reported, and results are archived in WRTI database. When surveys involve implementation by cooperators or partners, the survey coordinator ensures that the I&M policy requirements for surveys are met.	United States Fish and Wildlife Service, 2013
Target Universe	The population about which you want to make an inference	United States Fish and Wildlife Service, 2013
Type I, Type II errors	Type I errors are 'false positives' that occur when you wrongly reject a hypothesis of no effect. Type II errors are 'false negatives' that occur when you wrongly fail to reject a hypothesis of no effect.	United States Fish and Wildlife Service, 2013
Uncertainty	The extent to which we cannot reliably predict the outcome or result of an action or event, or prove that something is true. In a monitoring context, it generally refers to the accuracy of conclusions drawn from survey data or models, or the	Nichols *et al.*, 2011

Terminology	Definition	Reference
	correctness of our predictions as to how a species or habitat will respond to a management action. Sources of uncertainty about management effectiveness include ecological (structural) uncertainty, environmental variation, partial controllability, and partial observability (taken from concepts in)	
Wildlife	Means any wild and indigenous animal, plant or microorganism or parts thereof within its constituent habitat or ecosystem on land, or in water as well as species that have been introduced or established in Kenya	WCMA, 2013
Wildlife Data	Means a set of values with respect to qualitative or quantitative variables related to wildlife.	WCMA, 2013

FOREWARD

The Constitution of Kenya, 2010 provides for the fundamental right of access to information. The National Wildlife Strategy 2030 outlines a vision for wildlife conservation as part of a strong environmental foundation for achieving Kenya's sustainable development agenda. It highlights the need to engage all Kenyans in recognizing the value of our wildlife and embracing their role in its conservation through appropriate collaborative initiatives.

Pillar 3 of the strategy recognizes the need for evidence-based decision-making and emphasizes the importance of knowledge, information and human capital for successful conservation. This pillar includes strategies to enhance capacity, develop evidence-based decision support tools for adaptive management and promote data sharing, use, and integration cross-sectoral and multi-scale planning for conservation and sustainable development. Uncoordinated, underfunded, limited sharing and access to data and information is identified as a hindrance to evidence-based conservation decision-making process.

Wildlife Conservation and Management Act, 2013 provides a framework to develop regulations for access and sharing of wildlife data and information in the wildlife sector to inform the Country's wildlife conservation and management goals.

WRTI strategic plan (2021-2025) mission is to conduct and coordinate wildlife research and training through innovative approaches to enable provision of accurate data and information to stakeholders for decision making. KWS Strategic Plan, (2019-2024) vision is to conserve Kenya's wildlife and its habitats for posterity, while its mission is to sustainably manage Kenya's wildlife and its habitats for the benefit of nature and humanity. These two policy guidelines provide a framework for enhanced collaboration with stakeholders on access to, and sharing of data and/or information in the wildlife sector to inform national policies and development initiatives.

DR. WINNIE KIIRU
Ag. CHAIR OF THE BOARD

PREFACE

The Wildlife Conservation and Management Act 2013 Section 7(l) mandates Wildlife Research and Training Institute (WRTI) to conduct and co-ordinate all research activities in the field of wildlife conservation and management and ensure application of research findings in conservation planning, implementation and decision making. The Institute is required to provide relevant data and information to inform policy on conservation related issues in Kenya.

These guidelines are a National Wildlife Sector policy document that provides framework on best practice related to sharing of data and information on wildlife between the various partners in compliance with the relevant laws and in line with Section 62 subsection 5 of the WCMA, 2013.

The guidelines have been developed by WRTI in collaboration with partner agencies. The partners include relevant government agencies [National Museums of Kenya (NMK), Directorate of Resource Survey and Remote Sensing (DRSRS), Kenya Marine and Fisheries Research Institute [KEMFRI], Kenya Institute of Primate Research (IPR), National Commission for Science, Technology and Innovation (NACOSTI)], Inter-Government Agencies, members of the Conservation Alliance of Kenya (CAK), Members of Kenya Wildlife Conservancies Association (KWCA), Universities and research institutions.

These guidelines will streamline access to information and data sharing among stakeholders to enhance service delivery by government.

DR. PATRICK OMONDI, OGW
DIRECTOR/EO

1.0 INTRODUCTION

1.1 Wildlife populations in Kenya have been negatively affected by changing land-uses and land tenure systems, habitat degradation due to overutilization by livestock and recurrence of droughts as well as habitat fragmentation due to increased human population growth, expansion of farms and rural & urban settlements and development of infrastructure (roads and railways) in wildlife habitats.

1.2 Most of the affected species are small to large sized mammals, birds, herpato-fauna, insects and plants. Therefore, it is important to undertake continuous monitoring of the wildlife resources in the Country.

1.3 Wildlife resource monitoring is "the collection and analysis of repeated observations or measurements to evaluate changes in condition and progress toward meeting a management objective" (Elzinga *et al*. 1998).

1.4 To be certain that changes detected by monitoring are actually occurring in nature and not simply a result of measurements taken by different people or in slightly different ways, detailed and exacting monitoring guidelines should be developed and implemented as part of all long-term monitoring programs (Geoghegan *et al*. 1990, Shampine 1993, Geoghegan 1996, Beard *et al*. 1999).

1.5 The Wildlife Census guidelines will be:

a) a key component of quality assurance for wildlife monitoring program in the Country to ensure that data meet defined standards of quality with a known level of confidence,
b) necessary for the National Wildlife Monitoring Program to be credible so that data stand up to external review,
c) necessary to detect changes over time and with changes in personnel, and
d) necessary to allow comparisons of data among places and agencies.

1.6 As part of planning and designing a long-term wildlife monitoring program for all protected areas in Kenya, scientists from the Wildlife Research and Training Institute

and Kenya Wildlife Service (Conservation Research Programs) have worked together to develop guidelines for undertaking wildlife census in the Country.

1.7 We developed these guidelines to help overcome the unique challenges posed by long-term monitoring. The 2 agencies have adopted the following guidelines to assist scientists in undertaking wildlife census in the Country. Ultimately, improving the quality of the guidelines is required for the census program to meet its goal of detecting changes of wildlife status and trends in protected areas and ecosystems under the protection and management of the KWS, Community and Private Conservancies as well as in individual or community lands.

2.0 GOAL, OBJECTIVES AND SCOPE OF THE GUIDELINES

2.1 The goal of undertaking wildlife censuses is to understand the long-term changes and trends of wildlife populations. This goal can only be achieved if standard methods and timings are used to undertake the wildlife census.

2.2 The specific objectives are to:

a) Provide guidance to Section 64 of the WCMA, 2013 in relation wildlife monitoring mechanisms;
b) Promote ease of planning and executing for wildlife census
c) Guide stakeholders and researchers
d) Encourage sharing of wildlife data and information legally
e) Support a process that will monitor and review wildlife data and information flow

2.3 The scope of the census guidelines covers species listed in Schedule 6 of the Wildlife Conservation and Management Act, 2013. These species fall within five taxonomic classes (Amphibians, Birds, Fish, Mammals and Reptiles) of animals found in Kenya. On plants, terrestrial vascular plants and marine species are addressed, including mangrove and seaweeds. The guidelines focuses on census within key wildlife ecosystems in Kenya. These include parks, reserves, sanctuaries, conservancies, ranches, private land and community land that host wildlife species.

2.4 The guidelines will ensure that wildlife censuses are scheduled accordingly to facilitate submission of the wildlife resource monitoring report as stipulated by section 64(3) of the WCMA 2013, which states "The Cabinet Secretary shall, at least once every five years, submit to the National Assembly a wildlife resources monitoring report showing the achievement made in the implementation of the past or subsisting national wildlife conservation and management strategy and avail the said wildlife resources monitoring report to the public".

3.0 PRE-CENSUS LOGISTICS AND PREPARATION

For any census proposal, the timing of fieldwork is critical for undertaking the census and reporting process. Careful consideration of the necessary lead-time is required, as it may be necessary to undertake census at specific times of the year depending on the ecology of the species in the subject area. Censuses over multiple years may be required where a single year's data is not adequate to detect the species or to address environmental factors. There may also be a time lag due to the availability of appropriate species census method expertise. Proponents should make allowance for this lag when planning census projects. Commissioning wildlife census as early as practicable in the planning/site selection phase of a census project will help avoid potential delays in approvals. Effective census should always begin with a thorough examination of the literature to identify the best times, locations and techniques for census. The profiles in this document provide a basis for effective census for mammal species currently listed as threatened at a national level in Kenya.

The pre-census logistics and preparations (operational requirements) shall include the following:

- Budget
- Staff time
- Schedule
- Coordination

3.1 Budget

The budget shall be as detailed as possible. The budget shall include the following:

- Personnel costs (local travel and accommodation; transport refunds for participants from other areas)

- Vehicle running expenses (This should include details on number of vehicles to be used; expected kms to be covered by each vehicle during the census period; Total kms to be covered by all vehicles; fuel consumption by each vehicle, which is expressed as amount of fuel consumed by each vehicle per km; Total amount of fuel (in liters) to be consumed by all the vehicles during the census; Total cost of all the fuel consumed by all vehicles during the census, which is calculated by multiplying total number of fuel (in liters) consumed by all vehicles by the cost of 1 liter of fuel)
- Vehicle maintenance expenses (usually at 30% of the vehicle running)
- Stationery (This will include all the stationery required during the census and include the following: printing papers, pencils, pens, note books, erasers, pencil sharpeners, GPS batteries, voice recorder batteries, masking tapes, clip boards, flash disks, external hard drives among others)
- Purchase of equipment where necessary. These include GPS units, voice recorders, headphones, camera, rangefinder, and binoculars respectively. These shall be procured on need bases but not at each and every census.
- Aircraft fuel (This will include Av-Gas for the light Cessna aircrafts and Jet-A1 for caravans and helicopter. It is important to have a good estimate of the number of drums required during the census and have the estimates provided by KWS Air Wing in consultation of the GIS team that has information on the area to be covered. It is important to note that the light aircrafts will use 1 drum of Av-Gas for two hours, whereas the caravan and helicopter will use 1 drum of Jet-A1 after every one hour).
- Conference hall: This will be important as it will be used as an operational base by the team. The cost is based on the number of participants multiplied by the number of days and cost per person per day.
- Air tickets: This is applicable when the census area is far, which makes it cheaper for census crew travelling from far to use air transport. Example of such areas include: Lamu, Shimba Hills, Wajir, Mandera and Turkana County. Budget for air tickets is also prepared to include movement of very senior officers from the relevant Ministry, KWS and WRTI travelling to launch or close the census.

3.2 Staff time

A list of all participants is prepared. The list should have roles of each participant and the number of days of participation per individual during the census. The roles include:

pilots, front seat observers, rare seat observers, data crew, drivers, census administrators, security personnel, aircraft technicians, mechanics, media relations personnel and officials attending the census launch or closing ceremony.

The latter group normally participants in the census for a few days whereas all the other participants cover the entire census period.

3.3 Scheduling

In order to ensure planning is adequately undertaken and all resources (financial, equipment and materials) are acquired on time, planning for the census should start 3 months before the anticipated date of the census. The first census planning meeting is expected to suggest a date for the census for approval by WRTI management. By the time this first planning meeting is held, a census concept should be in place for review and adoption.

3.4 Coordination

The census will be coordinated by WRTI, Division of Research, Department of Wildlife Populations and Habitats Dynamics. The Director/CEO will appoint a census planning committee that will include field scientist, respective area managers, protected area managers and relevant conservation partners working in the area. This will aim to ensure transparency in the census methodology and results emanating from the census.

4.0 DESIGN OF CENSUS

4.1 Sample design

Different designs will be used for different census methods. For total aerial census, the census area will be divided into blocks of about 600km^2. This is to ensure the aircraft assigned to one block completes the wildlife count therein in one day (6 hours, 3 hours in the morning and 3 hours in the afternoon). For sample aerial census, the census area will be divided into grids measuring 5km by 5km and each aircraft will be assigned about 100 units each day (early morning and late afternoon).

For ground census, the census area is divided into blocks that can be covered for around 4 hours by vehicle. The road networks acts as block boundaries. The blocks should have adequate road network to enable the observers to drive within it and using binoculars to count the wildlife therein. Where the ground census is done on foot, the roads are used as bases for starting point of transects.

Detailed outline of sampling designs used to count different species of wildlife are provided in the Ecological Monitoring and Procedure Manual (KWS, 2020), cross-border aerial census manual (KWS, TAWIRI and AWF, 2015), Norton-Grifiths, 1978 and Doughlas-Hamilton, 1996.

4.2 Sampling units, sample frame, and target universe

The sampling units are the blocks whereas the checklist of species to be counted and human activities to be established form the sampling frame. The name of the protected area, conservancy and/or ecosystem constitutes the target universe.

4.3 Sample selection and size

The sample selection will follow standard methods documented by Norton-Griffiths (1978) and Doughlas-Hamilton (1996). The selected samples will follow the species number and area curve model that ensures that the number of species identified flattens at given size of area sampled as described by MacArthur and Wilson (1967) and Smith (2013).

For estimation of sample size, knowledge on the population size, expected confidence level, margin of error (confidence interval), standard deviation and z-scores are important to estimate. Then, the sample size (for unknown population or a very large population) can be determined using the following formula (Israel, 1992):

Required sample size = $(\text{Z-score})^2 \times \text{StdDev} \times (1\text{-StdDev})/(\text{Margin of error})^2$

Details on strategies for determination of sample size and its moderation for small and large populations is discussed in details by Israel (1992). The key strategies include using a census for small populations, using a sample size of a similar study, using published tables and using a formula to calculate sample size (Israel, 1992).

4.5 Sources of error

The source of errors for the census include:

- Over or under estimates by observers
- Wrong recording of a species or number counted
- Wrong data entry
- Lack of circling to confirm wildlife herds with more than 10 animals
- Photographs of groups with over10 animals not taken
- Wrong photographic count
- Typing errors

5.0 FIELD METHODS

Different field methods shall be used for different species. The range from total aerial census, sample aerial census, total ground census, pit fall traps, transect census, use of sweep nets along transects, dung count method among others. Table 1 below provides a summary of the census methods in different ecosystems and species of wildlife to be counted to establish their abundance.

The key methods to be used during wildlife census in Kenya include the following:

a) Total aerial census
b) Sample aerial census
c) Sample ground census (Using line & strip transects)
d) Sample ground census (Using sweep nets along transects)
e) Sample ground census (Using pit fall traps set along transects)
f) Sample ground census (Using line or strip transects for woody vegetation; and quadrants for herbaceous plans & grasses
g) Sample ground census (Using camera traps, spatial explicit capture recapture method, call back method, spoor count)
h) Total ground census (Individual identification)
i) Total ground census (Using citizen science and artificial intelligence)

Table 1: Census methods used in different ecosystems in Kenya and species to be counted

Census Method	Census Areas	Species to be Counted	Human Activities to be Recorded
Total aerial census	Amboseli-Magadi, Athi-Kapiti, Laikipia-Samburu-Marsabit, Meru Conservation Area, Lamu-Lower Garissa, Maasai Mara, Shimba Hills-Mwalunganje, Nasalot-S Turkana-Kerio Valley and Tsavo Ecosystems; Naivasha Ranches; Ruma National Park; Lake Nakuru National Park; Mwea National Reserve; and, Kanyonyoo Ranch	All mammals larger than dik dik, ostrich, kori bastard, secretary bird, livestock (cattle, shoats, camel & donkey)	Farms, settlements, livestock, livestock bomas (occupied and unoccupied), logging, charcoal kilns, poachers' hideouts, water points (pans, boreholes, dams, troughs)
	Marine Ecosystems	Dudongs, whales, Dolphines, Sharks, Sea Turtles	Fishing nets, boats
	Solio Ranch	Black rhino and white rhino	Livestock, logging, charcoal kilns, snares
Total ground	Ruma National Park	Roan antelope	Snares, livestock, burnt areas,

Census Method	Census Areas	Species to be Counted	Human Activities to be Recorded
census			logging
	Nairobi National Park	All large mammals and birds	Snares, burnt areas
	Amboseli National Park	All large mammals and birds	
	Shimba Hills National Reserve	Sable antelope	Snares, livestock, logging, charcoal kilns, burnt areas
	Wetland areas	Waterfowls	Boats, nets, farms around wetlands
	Swamps in Western and Central Rift Conservation Areas as outlined by Waweru *et al.* (2021)	Sitatunga	Boats, nets, farms around wetlands
Sample aerial census	Mandera; Wajir; Garissa; Tana River; Turkana; Marsabit; Kilifi	All mammals larger than dik dik, ostrich, kori bastard, secretary bird, livestock	Farms, settlements, livestock, livestock bomas (occupied and unoccupied), logging, charcoal kilns, poachers' hideouts, water points (pans, boreholes, dams, troughs)
Sample ground census (Transects)	All protected areas, conservancies, ranches and other important bird areas	Terrestrial birds	Farms, settlements, livestock, livestock bomas (occupied and unoccupied), logging, charcoal kilns, poachers hideouts, water points (pans, boreholes, dams, troughs)

Census Method	Census Areas	Species to be Counted	Human Activities to be Recorded
	Remnants of Tana River Forests	Red Colobus and Crested Mangabey	Farms, settlements, livestock, livestock bomas (occupied and unoccupied), logging, charcoal kilns, poachers' hideouts, water points (pans, boreholes, dams, troughs)
Sample ground census (Sweep nets)	All protected areas, conservancies and ranches	Insects	Farms, settlements, livestock, livestock bomas (occupied and unoccupied), logging, charcoal kilns, poachers' hideouts, water points (pans, boreholes, dams, troughs)
Sample ground census (Pit fall traps))	All protected areas, conservancies and ranches	Herpato-fauna (reptiles and amphibians)	Farms, settlements, livestock, livestock bomas (occupied and unoccupied), logging, charcoal kilns, poachers' hideouts, water points (pans, boreholes, dams, troughs)
Sample ground census (Transects: woody vegetation; and quadrants: herbaceous	All protected areas, conservancies and ranches	Vegetation surveys (woody, herbaceous & grasses	Farms, settlements, livestock, livestock bomas (occupied and unoccupied), logging, charcoal kilns, poachers' hideouts, water points (pans, boreholes, dams, troughs)

Census Method	Census Areas	Species to be Counted	Human Activities to be Recorded
plans & grasses			
Sample ground census (Camera traps)	Abardares, Eburu, Mount Kenya, Mau Forest Complex, Mount Kenya wildlife Conservancy	Mountain bongo	Farms, settlements, livestock, livestock bomas (occupied and unoccupied), logging, charcoal kilns, poachers' hideouts, water points (pans, boreholes, dams, troughs)
	Abardares, Eburu, Mount Kenya, Mau Forest Complex, Mount Marsabit, Shimba Hills N. Reserve, Arabuko Sokoke N. Reserve, Mount Elgon,	Bush duiker, giant forest hog, bush pig, Adders duiker, leopards	Farms, settlements, livestock, livestock bomas (occupied and unoccupied), logging, charcoal kilns, poachers' hideouts, water points (pans, boreholes, dams, troughs)
Individual Identification	All rhino range areas as described by Waweru *et al.* (2021) except Solio ranch)	While and black rhinos	Farms, settlements, livestock, livestock bomas (occupied and unoccupied), logging, charcoal kilns, poachers' hideouts, water points (pans, boreholes, dams, troughs)
Sample ground census (Spoor count method)	All protected area, conservancies, sanctuaries and ranches	Large carnivores (lion, cheetah, hyena and leopard) and small carnivores (jackal, fox, genets,	Livestock, human settlements

Census Method	Census Areas	Species to be Counted	Human Activities to be Recorded
		caracal	
Sample ground census (Call back method)	All protected area, conservancies, sanctuaries and ranches	Large carnivores (lion, cheetah, hyena and leopard) and small carnivores (jackal, fox, genets, caracal	Livestock, human settlements
Sample ground census (Spatial explicit capture recapture [SECR] method0	All protected area, conservancies, sanctuaries and ranches	Large carnivores (lion, cheetah, hyena and leopard)	Livestock, human settlements
Citizen Science	Laikipia, Samburu, Marsabit Counties	Grevy's Zebra	Farms, settlements, livestock, livestock bomas (occupied and unoccupied), logging, charcoal kilns, poachers hideouts, water points (pans, boreholes, dams, troughs)

6.0 DATA MANAGEMENT AND ANALYSIS

6.1 Data entry, verification, and editing

All the data stored in Dictaphones shall be Trans-scripted into data sheets. The data recorded in the data sheets and that in the Dictaphones should be checked for accuracy of recording by a team that was not involved in transferring the data from the Dictaphones to data sheets. Once verified, the data should be entered in to excel spread sheets. The entered data should also be checked by a team that was not involved in entering it into the excel spread sheets. Any entry errors should then corrected. The excel spread sheets are then merged to acquire one master spread sheet. This is the dataset that is imported into ArcGIS and merged with the waypoints and tracks data from the GPS to form the main metadata. It is then available for preparation of summary results and preparation of distribution maps.

6.2 Metadata

The cleaned and final metadata shall be organized into one shape file with all attributes stored therein. The metadata should then be uploaded to the data storage server for secure storage. Additional files should be shared with the Head of Wildlife Populations and Habitat Dynamics. Duplicate shapefiles will be stored in hard drives by the respective office in charge of wildlife data.

6.3 Data security and archiving

The raw data and the cleaned metadata are stored in the WRTI data storage server. Additional data shall be stored in hard drives by respective offices.

6.4 Analysis methods

The data shall be analyzed following standard processes as described by Jolly (1969), Norton-Griffiths (1978), Douglas-Hamilton (1996), Zar (1996). For total and sample aerial

census, summary tables of the number of wildlife species counted in the census area shall be tabulated. Non-parametric statistics shall be used to test the observed number of wildlife species compared to previous census to discern whether population changes are statistically significant during the periods under review (Zar, 1996). For sample aerial census, analyses procedures describe by Jolly (1968) and outlined by Norton-Griffith (1978) shall be followed. Transects and species distribution maps shall be prepared using ArcGIS software following procedures described by ESRI (2020) or higher versions.

Where sampling has been undertaken and distribution of data collected is established to be normal, parametric analysis can be undertaken following procedures described by Zar (1996). If the computed distribution of the data is not normal, the data can be transformed as outlined by Zar (1996). This should be followed by use of parametric statistics to discern statistical significance of observations under investigations.

The interpretation of all analyzed data should follow procedures described by Zar (1996).

7.0 REPORTING

7.1 Background

Census methods and level of search effort vary widely between census areas. Therefore, it is vital that census reports include detailed information on the methods used and the level of search effort adopted. This should include who was involved, what work was carried out and where, when (both date and time of day) and how the census was conducted, as well as the climatic conditions at the time. The census report should follow the standard format common to all scientific research. This will facilitate interpretation of the census results and replication of the study for comparative purposes. It is useful to record the GPS location of all sampling units and provide maps of the study area. Detailed descriptions of the habitat should be recorded. Information on the condition of the habitat at the time of the census should also be included, as this may be useful in later analysis. Documenting the habitat occupied by target taxa during the survey process, and a site description, will add value to the census. Documentation of observers and their

skills is also important. Presentation of all mammal taxa recorded is essential as it can provide a measure of census effort and effectiveness.

It is important that reports contain suitable information to demonstrate the census was sufficient to draw the conclusions. Documenting the survey effort will be particularly important for species that might be present at very low abundance in the project area. Findings should be supported by information such as photos of equipment used during the census and habitat structure, photos/records of scat or other trace material, summary tables of the results from the census, and photographs of mammals that were counted during the census. Tabulated GPS coordinates of sites and equipment placement will allow precise determinations of occurrence within a project area.

Maps should be included that show the distribution of the species counted and any other feature of importance in the census area. Maps could also show the location of equipment placement such as trapping equipment, as well as GPS tracks of the transect path taken during active acoustic monitoring or searches. This will allow a better understanding and interpretation of census effort.

Reports should carry some justification of the census design, whether it be opportunistic, systematic or focused on certain likely habitats. This would include information on the habitat types present and the survey effort given to each. The design should also distinguish between known or potential foraging, breeding and commuting habitats. For species that might be present at very low abundance, it is important to describe the likelihood of presence based on habitat descriptions made as part of the survey. Explanations on the timing of the census, suitability of the weather, the speed and duration of transect travel and observations recorded should also be given.

Census data should be made available to National and County Governments and should be included in National Wildlife Database.

7.2 Report contents

The census reports will have one standard report format. The report will include the following sections:

i) **Topic:** The topic should be short and precise. It should be catchy to attract readers to want to read the report. An example of a census report could be, "Population Trend of Large Mammals in the Fragmented Landscape of Tsavo Ecosystem"

ii) **Authors:** This should Name all the Authors who participated in developing the report. The first Author should have made the highest contribution in designing and developing the report. The authors list should be arranged according to contribution of each author. This will be determined by the lead author of the report. The last author is the overall supervisor of the census.

iii) **Table of Contents:** This section will show the pages of the sections inside the report.

iv) **List of Figures:** The section will list all figures in the report.

v) **List of Tables:** The section will list all the tables in the census report

vi) **List of photographs (Plates):** This section will list all photographs used in the report

vii) **Acknowledgements:** This section should recognize and thank those who supported the census to be undertaken successfully.

viii) **Introduction:** The section will introduce the report including the justification for the census, goal and specific objectives

ix) **Materials and methods:** This section will describe the census area, outline the sampling frame and sampling units, state the sample size and why use that sample size, describe how the data was collected and analyzed, sources of errors and outline any assumptions. Appropriate references should be included for literature reviewed on the census area, methods and data analysis tools and software used as well as interpretation that guides the interpretation of the data.

x) **Results:** This section should report on the findings after undertaking the census. It should be very precise and specific on the results. Where statistics are used, reports on these statistics should follow standard procedures of describing statistical results.

xi) **Discussion:** The section should provide a detailed comparison of the results with other results in the same area, other areas in Kenya and outside Kenya. Reasons for observed results should be provided in this section.

xii) **Conclusions:** Clear conclusions should be provided in the report. The conclusions are based on results obtained from the census and associated reasons for the observed results.

xiii) **Recommendations:** The report should also have clear recommendations. These are drawn from the results and reasons from the observed results. The recommendation are expected to guide management interventions and also identify other areas that require further research

xiv) **Reference:** All the references quoted in the report should be listed in this section. Standard referencing approach should be used. For our reports, we will adopt the referencing approach used by the African Journal of Ecology.

xv) **Annexes:** A list of annexes should also be included in the reports. This could include the concept developed to source for funding to undertake the census, list of participants during the census, raw census data, key and important photographs not included in the report and general maps not included in the other sections of the report but are important to be part of the report.

7.3 Reporting schedule

The reports should be prepared immediately after the census. Where the census exercise was time consuming and tiring, a break of 2-5 days could be necessary to allow the team to rest before they start data cleaning and report writing. Data cleaning and report writing for one census site should not take more than 10 days. The census team leader should ensure this schedule is strictly followed to facilitate provision of a draft report 14 days after the undertaking of the census is completed.

Once the draft report is available, it shall be shared with all the authors for comments. The authors will be given 5 working days to provide their comments to the lead report author. The lead author shall then incorporate the comments for a maximum of 3 days. Less days can be taken if only few comments are received. In consultation with the Director, WRTI and Deputy Director - Research and Development, the lead author shall then identify 3 external reviewers for review of the census report. The review by external team will be on "***pro bono***" basis. The reviewers will be requested to review the report within 14 days and return the comments to the lead author.

7.4 Report distribution

It is important to share the final report to National Government Departments and Agencies, County Governments, Conservation Non-Governmental Organizations, Development Partners, National and International Institutions of Higher Learning, and Conservancies.

Electronic copy of the report will be uploaded to the Respective Wildlife Ministry, Kenya Wildlife Service and Wildlife Research and Training Institute Websites. An electronic copy will also be shared with other partners and institutions listed in Paragraph one above. They will be requested to upload the final report to their respective websites.

Hard copies will be shared with key entities that supported the Census as well as libraries of different institutions and partners in Kenya.

All technical reports should have an **ISBN Number**. The number will be applied from the Kenya National Library services. Two copies of the report shall be deposited with the National Library Services as a Policy and Legal Requirement in the Country.

8.0 WILDLIFE CENSUS CALENDAR

A calendar for wildlife census in the country is summarized in Tables 2-4 below. The calendar is summarized for Total Aerial Census, Sample Aerial Census, Marine Aerial Census, and Ground Census for Waterfowls, Birds, Herpatofauna (Reptiles and Amphibian) and Vegetation Surveys.

The total and sample aerial census will be undertaken after every three years and will cover both the dry and wet seasons (Table 2 and Table 3). For each census area, we will strive to have a dry and wet season census each year. This will enable comparison of population size and distribution of wildlife during the dry and wet seasons, resulting to provision of data for long-term monitoring of wildlife during the two seasons.

Table 2: Calendar for Total Aerial Census

Census Area	Months	
	Dry Season	**Wet Season**
Amboseli-Magadi Ecosystem	October	April
Athi-Kapiti Ecosystem	October	April
Kanyonyoo Ranch	October	April
Laikipia-Samburu-Marsabit Ecosystem	July	November
Meru Ecosystem	July	November
Lamu-Lower Garissa Ecosystem	September	May
Maasai Mara Ecosystem	November	May
Mwea National Reserve	July	April
Nasalot-South Turkana-Kerio Valley Ecosystem	August	April
Shimba Hills Ecosystem	September	May
Tsavo Ecosystem	February	April
Naivasha Ranches	August	June
Ruma National Park	February	June
Lake Nakuru National Park	January	June
Solio Ranch	December	June
Marine Ecosystem	September	April

Table 3: Calendar for Sample Aerial Census

County	Months	
	Dry Season	**Wet Season**
Mandera	February	May
Wajir	February	June
Garissa	March	June
Tana River	August	May
Turkana	July	April
Marsabit	March	November
Kilifi	February	April

Ground Census for Waterfowls, Birds, Herpatofauna (Reptiles and Amphibian) shall be done during the wet and dry seasons. Priority census sites shall include Important Bird Area, Species hotspots, Protected Areas (Parks, Reserves and sanctuaries), Conservancies and Ranches. Table 4. Below provides a calendar for all the Ground Census as well as frequency of the census at each site.

Table 4: Calendar for Ground Census

Species	Sites	Census method	Census Period
Elephants	Shimba Hills National Reserve; Aberdares National Park; Mount Kenya National Park & Forest Reseve; Mau Forest Complex; Mount Elgon National Park; Arabuko Sokoke Forest Reserve; Marmanet Forest; Roroki-Kirisia Forest;	Indirect dung count method	January, February, July, August, September (dry season)
Waterfowl Census	Wetland areas (i.e., Amboseli swamp; Lake Nakuru, Lake Epolosaat; Lake Naivasha; Lake Magadi; Lake Jipe; Lake Barigo; Lake Bogoria; Lake Turkana; Lake Kanyamboli; Lake Victoria; The Tana delta; Kesses dam; the 7 forks dams;	Ground counts using binoculars	January (dry season) and November (wet season)
Sitatunga	Sites as outlined by Waweru et al. (2021); See Annex 2	Boat census and walking transects while using binoculars	July
Roan antelope	Ruma National Park	Road counts and	Daily with weekly and monthly

Species	Sites	Census method	Census Period
		individual identification	reports consolidated
Sable antelope	Shimba Hills National Reserve	Road counts and individual identification	Daily with weekly and monthly reports consolidated
Rhino	All rhino range except Solio Ranch	Individual identification	Daily, with monthly reports being consolidated and tabulated to account for all rhinos
Mountain bongo	Aberdares, Eburu, Mount Kenya, Mau Forest Complex, Mount Kenya wildlife Conservancy	Camera traps and Individual Identification	Each month with monthly reports from Camera Trap data and Individual recognition method
Grevy's Zebra	Laikipia, Samburu, Marsabit Counties	Citizen Science	January after every two years
Terrestrial birds	All protected areas, conservancies, ranches and other important bird areas	Use of mist nets along transects	Wet and dry season (appropriate months to be selected depending on where the survey is being undertaken
Red Colobus and Crested Mangabey	Remnants of Tana River Forests	Walking transects	Dry season (July-September)
Herpatofauna (reptiles and amphibians	All protected areas, conservancies and ranches	Pit fall traps along set transects	Wet and dry season (appropriate months to be selected depending on where the survey is being

Species	Sites	Census method	Census Period
			undertaken
Carnivores	All protected areas, conservancies and ranches	Spatial explicit capture recapture method, spoor count, call back method	Dry season (January, February March & July, August, September, October)
Insects	All protected areas, conservancies and ranches	Sweep nest along set transects	Wet and dry season (appropriate months to be selected depending on where the survey is being undertaken
Vegetation surveys (woody, herbaceous & grasses	All protected areas, conservancies and ranches	Transects (woody vegetation) and quadrants (for herbaceous plans & grasses	Wet and dry season (appropriate months to be selected depending on where the survey is being undertaken

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10.0 LIST OF ANNEXES

Annex 1: Standard Operating Procedures

The following standard operating procedure will be followed for census organized by WRTI:

1. A census planning committee (CPC) is appointed by the Director/CEO, WRTI, three months before the date of the census
2. The Chairman of the census committee facilitates preparation of a census concept, three months before the proposed census date
3. The concept will include: Introduction, Justification, Date of census, Personnel required, Work plan, Expected Outputs, Budget and Annexes (if any)
4. The concept is discussed during the first CPC meeting and chairman coordinates collation and input of comments to the concept
5. The revised concept is submitted to the national concept proposal review committee (NCPRC)
6. Comments from the NCPRC are incorporated by the CPC.
7. The NCPRC forward the revised concept to the Director/CEO of WRTI for approval
8. Once concept approved, CPC to initiate planning of the census
9. CPC ensures funds are forwarded to the site where the census will be undertaken
10. The CPC and the field teams hold planning meetings together in the field and ensures all the procurement is undertaken
11. The census is executed
12. Data is cleaned and report prepared not more than five days after completion of the actual census exercise
13. Report reviewed and an ISBN applied to the National Library Services through the WRTI Library
14. Once ISNB Number is received and included in the report, the final report is uploaded to the WRTI and KWS websites.
15. Digital version of the report is shared with conservation NGOs, relevant KWS and WRTI staff.

Note that for census organized by other partners and/or students, the normal research authorization process shall be followed and a research permit issued by WRTI

Director/CEO. In case the partner or student require use of the KWS air crafts, WRTI shall be notified in good time to make the necessary requisition of the aircraft(s). The partner or student shall meet all the costs associated with the census.

WRTI shall partner with the Department of Resource Surveys and Remote Sensing (DRSRS) to undertake sample and total aerial census. In such cases, each organization shall meet the cost of their respective crew participating in the census. However, in case the National Government provides a one-off budget to undertake a National Wildlife Census exercise to WRTI, then WRTI shall meet the cost of DRSRS participants.

Annex 2: Sites for counting sitatunga in Western Kenya and Rift Valley

No	County	Site	village
1	Busia	Busia –Bunyala	Bumbamba
			Bulwani Island
		Bundalangi	Maduwa island
			Sio Port
2	Siaya	Yala Swamp	Lake sare
			Kanyaboli
			Namboyo
		Lake Victoria	Osieko beach
			Uhanya
			Misori beach
3	Kisumu		Dunga beach Kisumu and Impala A and B
			Kusa beach
			Koguta
		Ndere Island National Park	Main island
			Butiana swamp
			Othany village
			Nyamware
4	Homabay		Kendu bay seka
			Kamuga-Kowili village
5	Migori	River Kuja	Kabuto
6	TransNzoia	Saiwa Swamp National Park	Inside the park
		Outside Saiwa Swamp National Park	(Sinyerere swamp)
			Kipsaina-kitonyi bridge
			Kitale Nature Conservancy
	Uasin Gishu	Kigwal swamp	
		Kesses dam	
	Nandi	Kibateti swamp	

Annex 3: Legal frameworks related to wildlife census

Legislation under which public sector agencies operate, defines the role, responsibility and power of the agency to enable it to carry out a particular function. Partner agencies must ensure they are acting lawfully. Some of the relevant laws and policies are listed below:

Main Statute	Role of Statute	Relevance of Statute
The Constitution of Kenya, 2010	Constitution is the supreme law of the Republic and binds all persons and all State organs at national and county levels of government	**Section 33 - Sub section 1(a –c):** Every person has the right to freedom of expression, which includes, freedom to seek, receive or impart information or ideas, artistic creativity;, academic freedom and freedom of scientific research. **Section 33- Sub section 2:** The right to freedom of expression does not extend to: propaganda for war, incitement to violence, hate speech; or advocacy of hatred. **Section 33 - Sub section 3:** In the exercise of the right to freedom of expression, every person shall respect the rights and reputation of others. **Section 35 - Sub section 1-3:** Every citizen has the right of access to information held by the State; and by another person and required for the exercise or protection of any right or fundamental freedom.

Main Statute	Role of Statute	Relevance of Statute
		Section 46 – Subsection 1(a – d) and Sub section 3: This Article applies to goods and services offered by public entities or private persons. It states that consumers have the right to the information necessary for them **Section 50 – Sub section 1 and 2** **(1)** Every person has the right to have any dispute that can be resolved by the application of law decided in a fair and public hearing before a court or, if appropriate, another independent and impartial tribunal or body. **(2)** Every accused person has the right to a fair trial. **Section 232- Sub section 1(f):** The values and principles of public service which include transparency and provision to the public timely and accurate information;
Wildlife Conservation and Management Act, 2013	An act of parliament to provide for the protection, conservation, sustainable use and management of wildlife in Kenya and for connected purposes.	**Section 5 - Sub-section 2 (g) parts (i-iv)** prescribe National Wildlife research and monitoring priorities and information systems. **Section 7 - Sub-section (*l*):** WRTI shall conduct and coordinate all research activities in the field of wildlife conservation and management and ensure application of research findings in conservation planning, implementation and decision-making.

Main Statute	Role of Statute	Relevance of Statute
		Section 52 - Sub section 1(a) parts (i-iv): Collect and analyse wildlife data and information to support planning and decision-making by different stakeholders. **Section 60, 61, 62**
Environmental Management and Coordination Act, 1999, CAP 387, No 8 of 1999	An ACT of Parliament to provide for the establishment of an appropriate legal and institutional framework for the management of the environment.	**Section 9 - Subsection 2(h):** undertake and co-ordinate research, investigation and surveys in the field of environment and collect, collate and disseminate information about the findings of such research, investigation or survey. **Section 50 (a-g):** The National Environment Management Authority shall, in consultation with the relevant lead agencies, prescribe measures necessary to ensure the conservation of biological diversity in Kenya **Section 51 (a – f):** The Authority shall, in consultation with the relevant lead agencies, prescribe measures adequate to ensure the conservation of biological resources *in-situ* and issue guidelines for management and conservation of biological diversity. **Section 52:** The National Environment Management Authority shall in consultation with the relevant lead agencies prescribe measures for the conservation of biological resources *ex-situ* especially for those species threatened with extinction and issue guidelines for their management.

Main Statute	Role of Statute	Relevance of Statute
Environmental management and co-ordination (Amendment) Act, 2015	AN ACT of Parliament to amend the Environmental Management and Coordination Act, 1999	**Section 4.** On access to information. **Part 3A - Sub section 1 and 2:** which states that Subject to the law relating to access to information, every person has the right to access any information that relates to the implementation of this Act that is in the possession of the Authority, lead agencies or any other person.
Access to information Act, 2016	An Act of Parliament which is intended to give effect to the right of access to information by citizens as provided under Article 35 of the Constitution and provide a framework for public entities and private bodies to proactively disclose information that they hold and to provide information on request in line with the constitutional principles.	**Section 4 - Sub section 1 (a & b):** States that every citizen has the right of access to information held by the State and another person and where that information is required for the exercise or protection of any right or fundamental freedom. **Section 4 - Sub section 2 (a &b):** every citizen's right to access information is not affected by any reason the person gives for seeking access; or the public entity's belief as to what are the person's reasons for seeking access. **Section 4 - Sub section 3:** Access to information held by a public entity or a private body shall be provided expeditiously. **Section 4 - Sub section 4:** Act shall be interpreted and applied on the basis of a duty to disclose and non-disclosure shall be permitted only in circumstances exempted under section 6.

Main Statute	Role of Statute	Relevance of Statute
		Section 5 (a)-On disclosure of information by public entities. **Part (vii):**a public entity shall provide sufficient guidance to enable any person wishing to apply for information under this Act to identify the classes of information held by it, the subjects to which they relate, the location of any indexes to be inspected by any person; **Section 6 - Sub section 1(a-h), and Sub Section 2 (a-j &i):** stipulates limitation of right of access to information related to security, intelligence information, and covert operations. **Section 6 - Sub section 4**: Public entity or private body may be required to disclose information where the public interest in disclosure outweighs the harm to protected interests as shall be determined by a Court. **Section 6 - Sub section 5:** A public entity is not obliged to supply information to a requester if that information is reasonably accessible by other means **Section 9 - Sub section 4 (a-c):** As soon as the information access officer has made a decision as to whether to provide access to information, he or she shall immediately communicate the decision to the requester

Main Statute	Role of Statute	Relevance of Statute
		Section 17 - Sub section 1 and sub section 2 part (a & b): on management of records by public entities **Section 19:** Where any information provided by a public entity or private body to an applicant under section 11 (on providing access to information) was supplied to the public entity or private body by a third person, the publication to the applicant of any defamatory matter contained in the information shall be privileged unless the publication is shown to have been made with malice.

Main Statute	Role of Statute	Relevance of Statute
Copyright Act 2014	An Act of Parliament to make provision for copyright in literary, musical and artistic works, audio-visual works, sound recordings, broadcasts and for connected purposes	**Section 23:** stipulated conditions of copyright by virtue of nationality or residence, and duration of copyright. **Section 24:** Copyright by reference to country of origin, where Copyright shall be conferred by this section on every work, other than a broadcast which is eligible for copyright **Section 25:** Copyright in works of Government and international bodies. **Section 26 – Part (a, d, &h):** On nature of copyright in literary, musical or artistic works and audio-visual works **Section 31 - Sub section 1 & 2:** On First ownership of copyright **Section 35:** On infringement, it stipulates the situations under which infringement occurs and action to be taken.
Industrial Property Act 2001	An Act of Parliament to provide for the promotion of inventive and innovative activities, to facilitate the acquisition of technology through the grant and Regulation of patents, utility models, technovations and industrial designs, to provide for the establishment,	Part III - Part XVIII

Main Statute	Role of Statute	Relevance of Statute
	powers and functions of the Kenya Industrial Property Institute and for purposes incidental thereto and connected therewith.	

Annex 4: Stakeholders

A: Government Agencies

No.	Name of Agency	Postal Address	Email
1.	Wildlife Research and Training Institute	P.O. Box 842-20117 Naivasha	WRTI@WRTI.go.ke
2.	Kenya Wildlife Service	P.O. Box 40241-00100 Nairobi	KWS@kws.go.ke
3.	National Museums of Kenya	P.O. Box 40658 -00100 Nairobi	dgnmk@museums.or.ke
4.	Kenya Institute of Primate Research	P.O. Box 24481 -00502 Nairobi	directoripr@primateresearch.org
5.	Directorate of Resource Survey and Remote Sensing	P.O. Box 47146 -00100 Nairobi	info@mining.go.ke
6.	Kenya Marine and Fisheries Research Institute	P.O. Box 81651-080100 Mombasa	director@kmfri.go.ke

No.	Name of Agency	Postal Address	Email
7.	National Commission for Science, Technology and Innovation	P.O. Box 30623 -00100 Nairobi	info@nacosti.go.ke
8.	Kenya National Bureau of Statistics	P.O. Box 30266-00100, Nairobi.	info@knbs.or.ke
9.	Kenya Fisheries Service	P.O. Box 58187 Nairobi	Info@kilimo.go.ke
10.	Kenya Forest Service	P.O. Box 30513-00100, Nairobi.	info@kenyaforestservice.org
11.	Kenya Forestry Research Institute	P.O. Box 20412 - 00200 Nairobi.	info@kefri.org
12.	National Environment Management Authority	P.O. Box 67839-00200, Nairobi.	dgnema@nema.go.ke
13.	Directorate of Veterinary Services	P.O. Box 00100-34188, Kabete	infodvs@kilimo.go.ke
14.	KENTTEC	P.O. Box 66290-00800 Westlands	support@kentec.co.ke;
15.	Kenya Tourism Board	P.O. Box 30630 – 00100 Nairobi, Kenya.	info@ktb.go.ke

B: Inter-Government Agencies

No.	Name of Agency	Postal Address	Email

1.	Regional Centre for Mapping of Resources for Development	P.O. Box 632 -00618 Nairobi	rcmrd@rcmrd.org
2.	Lusaka Agreement Task force	P.O. Box 3533 -00506 Nairobi	administrator@lusakaagreement.org
3.	International Union for Conservation of Nature	P.O. Box 68200 Nairobi	governancesupport@iucn.org

C: Conservation Alliance of Kenya

No.	Name of Agency	Postal Address	EMAIL
1.	African Conservation Centre	P.O. Box 15289-00509	acc@acc.or.ke
2.	Africa Network for Animal Welfare	P.O. Box 3731 – 00506, Nairobi, Kenya	info@anaw.org
3.	African Wildlife Foundation	P.O. Box 310, 00502. Nairobi, Kenya	africanwildlife@awf.org
4.	Amboseli Ecosystem Trust		
5.	Awaii Community Foundation	C/O Conservation Alliance of Kenya	info@conservationalliance.or.ke
6.	Amboseli Trust for Elephants	P.O. Box 346-00209 Loitoktok, Kenya	info@elephanttrust.org
7.	Big Life Foundation	Big Life UK , c/o Chapel & York Ltd Unit 12 Ladycross Business Park, Hollow Lane, Dormansland, Surrey RH7 6PB, United Kingdom	donations@biglife.org; Canada@biglife.org
8.	Born Free Foundation	PO Box 1519. Postcode 00502. Karen Nairobi.	info@bornfree.or.ke.
9.	Center for Rural Urban Development		
10.	Chepkitale Indigenous Peoples Development Program	Address: P.O. Box 4552 - 30200, Kitale, Kenya	minority.rights@mrgmail.org
11.	David Sheldrick Wildlife Trust	P.O. Box 15555 Mbagathi, 00503 Nairobi	
12.	Ecological Society for Eastern Africa (ESEA)	P.O. Box 40658 - 00100 GPO	

No.	Name of Agency	Postal Address	EMAIL
13.	Elephant Neighbors Center	P.O. Box	info@elephantcenter.org; jim.nyamu@elephantcenter.org
14.	Elephant voices		
15.	Ewaso Lions	P.O. Box 14996-00800Nairobi	info@ewasolions.org
16.	Friends of Nairobi National Park (FoNNaP)	P.O. Box 45124 00100 Nairobi	fonnap1@gmail.com
17.	Grevy's Zebra Trust	P.O. Box 15351-00509	conservation@grevyszebratrust.org
18.	International Fund for Animal Welfare (IFAW)	P.O. Box: 25499-00608 Nairobi.	ewamba@ifaw.org
19.	Kenya Elephant Forum		info@kenyaelephantforum.org
20.	Kenya Wildlife Conservancies Association		info@kwcakenya.com
21.	Kenya Wildlife Trust	Kenya Wildlife Trust, P.O. Box 86-00502 Nairobi	info@kenyawildlifetrust.org
22.	Kenya Birds of Prey Trust		
23.	Laikipia Wildlife Forum	P.O. Box 764, Nanyuki, Kenya	communications@*laikipia*.org
24.	Lion Gurdians		
25.	Maasai Wilderness Conservation Trust	P.O. Box 1413 Santa Barbara, California 93102	luca@maasai.com
26.	Maniago Safaris Ltd.		info@maniagosafaris.com
27.	Mount Kenya Trust	P.O. Box 690-10400	info@mountkenyatrust.org

No.	Name of Agency	Postal Address	EMAIL
28.	Nature Kenya	P.O. Box 44486, 00100 GPO Nairobi, Kenya	office@naturekenya.org
29.	Pan African Wildlife Conservation Network	P.O. Box 47756-00100 GPO Nairobi, Kenya	info@aworipat.me
30.	Peregrine Fund		
31.	Rhino Ark	WRTI HQ, P.O. Box 181 – 00517, Nairobi, Kenya	info@rhinocharge.co.ke
32.	Rural Villages Development Centre		
33.	Save The Elephants	Karen P.O. Box 54667-00200 Nairobi. Kenya	info@savetheelephants.org
34.	Space for Giants		
35.	The Green Belt Movement	Adams Arcade, Kilimani Road off Elgeyo Marakwet Rd P.O. BOX 67545-00200, Nairobi, Kenya	nobelwomen@greenbeltmovement.org
36.	The Nature Conservancy	The Nature Conservancy 4245 North Fairfax Drive, Suite 100 Arlington, Virginia 22203-1606, ph. 703-841-5300	africa@tnc.org
37.	Tsavo Trust	P.O. Box 204-90128 Mtito Andei	richard@tsavotrust.org
38.	Wildlife Direct	P.O. Box 24467-00502 Karen, Nairobi Tel. +254 705133509	info@wildlifedirect.org
39.	World Wide Fund for Nature (WWF) Kenya	P.O. Box 62440-00200Nairobi, Kenya	info@wwfkenya.org

D: Other Partners

No.	Name of Agency	Postal Address	EMAIL
1.	Africa World Heritage Fund	DBSA Building, 1258 Lever Road, Headway Hill, Midrand 1685, South Africa	souayibouv@awhf.net
2.	African Center for Technology Studies	P.O. Box 45917 – 00100, Nairobi – Kenya	info@acts-net.org
3.	ATA Interpol	NTERPOL General Secretariat, 200, quai Charles de Gaulle 69006 Lyon	GeneralSecretariat@interpol.int; General.Secretariat@interpol.int; Secretary.General@interpol.int
4.	Bill Jordan Wildlife Defense Fund	P.O. Box 46250, Madison, WI 53744-6250 Phone: (608) 442-3536 1-800-WILD-101 Fax (608) 442-5264	info@wildlifedefenseusa.org
5.	Bioversity International	Kenya - Biodiversity International c/o ICRAF P.O. Box 30677-00100 Nairobi, Kenya Tel. (+254) 20 722 4513 Fax. (+254) 20 722 4001	bioversity-kenya@cgiar.org
6.	Birdlife International	The David Attenborough Building, 1st Floor, Pembroke Street, Cambridge, CB2 3QZ, United Kingdom	Birdlife-africa@birdlife.org
7.	Bloodlink Foundation	Ground Floor, Kedong House	info@bloodlinkfoundation.org.

No.	Name of Agency	Postal Address	EMAIL
		Junction of Lenana Rd. & Ralph Bunche Rd. Nairobi, Kenya Email: info@bloodlinkfoundation.org Tel: +254 -020-2738418 / 26	
8.	Care for the Wild International (CFTW)	P.O. Box 548, Sonpark,, 1206,, South Africa +27(0)13590 4448	media@careforwild.co.za
9.	Centre for Disease Control (CDC)	1600 Clifton Road Atlanta, GA 30329-4027 USA 800-CDC-INFO (800-232-4636), TTY: 888-232-6348	cgh@cdc.gov
10.	Cheetah Conservation Fund	P.O. Box 1755 Otjiwarongo, Namibia	nfo@cheetah.org
11.	CITES Mike Programme	CITES Secretariat International Environment House 11 Chemin des Anémones CH-1219 Châtelaine, Geneva Switzerland Tel: +41-(0)22-917-81-39/40 Fax: +41-(0)22-797-34-17	info@cites.org
12.	Earth Watch Institute Kenya	1380 Soldiers Field Road Boston, MA 02135 U.S.A.	info@earthwatch.org

No.	Name of Agency	Postal Address	EMAIL
13.	East African Environmental Network (EAEN)	3rd floor, Kodi Road	Tel: (020)601064
14.	Eden Wildlife Trust		Fill online form
15.	Elephant Research Trust Fund		Fill form online
16.	European Union	Union House, Ragati Road P.O. Box 45119-00100 Nairobi Phone number: 254 20 2802000 Fax: 254 20 2716481	Kenya@eeas.europa.eu
17.	Fauna and Flora International	Fauna & Flora International The David Attenborough Building, Pembroke Street, Cambridge, CB2 3QZ	info@fauna-flora.org
18.	Fonds Francais pour l'Environment Mondial (FFEM)	Nairobi, Kenya C/O World Agroforestry Centre United Nations Avenue, Gigiri Mailing address: P.O. Box 30677–00100, Nairobi, Kenya Office Tel: + 254 20 7224442	cifor-nairobi@cgiar.org
19.	Forest Action Network	Post. P.O. Box 380-00517. Uhuru Gardens Nairobi	fan@fankenya.org
20.	Forestry Bureau, COA- Taiwan	No. 2, Hangchou S. Rd., Sec. 1, Taipei City 10050, Taiwan R.O.C.	Fill online form
21.	FREI GEBOREN (Germany)		Fill online form

No.	Name of Agency	Postal Address	EMAIL
22.	French Development Agency (AFD)	4th Floor, Top Plaza Kindaruma Road off Ngong Road P.O. Box 45955-00100NAIROBI Tél: (+254) 20 259 29 07 / 09 /20 259 29 13/14 Portables bureau: (+254) 722 20 77 27 / 734 33 33 31	afdnairobi@afd.fr
23.	Friends of Conservation	Friends of Conservation P.O. Box 74901-00200 Nairobi Kenya	focinfo@aol.com
24.	Global Communities (formerly CHF International)	8601 Georgia Ave, Suite 800 Silver Spring, MD 20910 US	dhumphries@globalcommunities.org
25.	Global Environment Facility (GEF)	C/O Political Focal Point Ministry of Environment and Forestry NHIF Building, 12th Floor P.O.Box 30126-00100 Nairobi Tel:+254-0-202730808/ 9	cs@environment.go.ke
26.	Institute of Primate Research	Institute of Primate Research End of Karen Road P.O. Box 24481-00502Karen Nairobi, Kenya Phone: +254-02-2606235/6 Fax: +254-20 2606231	directoripr@primateresearch.org

No.	Name of Agency	Postal Address	EMAIL
27.	International Centre of Insect Physiology and Ecology	P.O. Box30772-00100 Nairobi,	icipe@icipe.org
28.	International Livestock Research Institute (ILRI)	ILRI Kenya P.O. Box 30709-00100 Nairobi +254-20 422 3000 +254-20 422 3001	ILRI-Kenya@cgiar.org
29.	Japan Tiger and Elephant Fund (JTEF)	3F Suehiro Bld.2-5-4 Toranomon Minato-ku Tokyo 105-0001 Japan	hogokikin@jtef.jp
30.	Kenya Forestry Working Group (KFWG)	East African Wild Life Society, Riara Road, Off Ngong Road, P.O. Box, 20110-00200, Nairobi.	KFWG@eawildlife.org
31.	Kenya Land Conservation Trust	Details unavailable	
32.	Kenya Organization of Environmental Education (KOEE)	P.O. Box 1513-0621 Kenya	koee@koee.org info@koee.org
33.	Kenya Wetlands Forum	P.O. Box 40658-00100 Nairobi Kenya	info@kenweb.or.ke
34.	Marwell Preservation Trust	Marwell Wildlife, Thompson's Lane, Colden Common, Winchester, Hants SO21 1JHs	marwell@marwell.org.uk
35.	Mpala Research Centre	Mpala Ranch	info@mpala.org

No.	Name of Agency	Postal Address	EMAIL
		P.O. Box 92-10400 Nanyuki, Kenya	
36.	Netherlands Environmental Assessment Agency	P.O. Box 303 3720 AH Bilthoven. Netherlands.	info@pbl.nl.
37.	Novartis Animal Health	Parks Canada National Office 30 Victoria Street Gatineau, Quebec Canada J8X 0B3	information@pc.gc.ca
38.	Pact Inc.	Pact 1828 L Street, NW, Suite 300 Washington, DC 20036 P: +1-202-466-5666	info@pactworld.org
39.	Park Action Committee Nakuru	P.O. Box 539- Nakuru	Contact Lake Nakuru National Park
40.	Parks Canada	Parks Canada National Office 30 Victoria Street Gatineau, Quebec Canada J8X 0B3	information@pc.gc.ca
41.	Ramsar Convention	Rue Mauverney 28 CH-1196 Gland, Switzerland	ramsar[at]ramsar.org

No.	Name of Agency	Postal Address	EMAIL
		T. +41 22 999 01 70 F. +41 22 999 00 02	
42.	Rockefeller Foundation	The Rockefeller Foundation Capitol Hill Square, Western Wing, 3rd Floor, Chyulu Road, off Haile Selassie Avenue, Upper Hill P.O. Box 14531-00800 Nairobi, Kenya	medialibrary@rockfound.org.
43.	Savannah Club Japan	Details not available	
44.	Save the Rhino International	Unit 3, Coach House Mews, 217 Long Lane, London, SE1 4PR	info@savetherhino.org
45.	Terra Nuova	viale Liegi, 10 00198 Roma	info@terranuova.org
46.	The Field Museum of Natural History Chicago	1400 S. Lake Shore Dr., Chicago, IL 60605.	pmayer@fieldmuseum.org (COLLECTIONS MANAGER)
47.	The Wildlife Foundation	P.O. Box 16456 – 00100, Nairobi, Kenya	info@thewildlifefoundation.org
48.	Tsavo Conservation Group	Tsavo Conservation Group P.O. Box 101-90128 Mtito Andei Kenya	Fill form online

No.	Name of Agency	Postal Address	EMAIL
49.	Tusk Trust UK	Tusk, 4 Cheapside House, High Street, Gillingham, Dorset, SP8 4AA, UK.	info@tusk.org
50.	United Nations Educational, Scientific and Cultural Organization (UNESCO)	P.O. Box 30592-00100, Nairobi, Kenya	nairobi@unesco.org
51.	United Nations Environment Program (UNEP)	United Nations Avenue, Gigiri P.O. Box 30552-00100 Nairobi, Kenya	unenvironment-info@un.org
52.	United States Aid for International Development (USAID)	P.O. Box 629-00621 Village Market Nairobi	usaidke@usaid.gov
53.	US Fish & Wildlife Service (USFWS)	U.S. Fish and Wildlife Service 1849 C Street, NW Washington, DC 20240	Fill online form
54.	Wildlife Clubs of Kenya	P.O. Box 20184-00200, Nairobi	info@wildlifeclubsofkenya.org
55.	World Agro forestry Centre (ICRAF)	P.O. Box 30677-00100, Nairobi, Kenya	worldagroforestry@cgiar.org
56.	Zoo D'Ammeville	RCS Metz B 331 338 632	secretariat@zoo-amneville.com
57.	Zoological Society of London	Outer Circle Regent's Park London, NW1 4RY	generalenquiries@zsl.org