

Kenya Wildlife Service



Guidelines for Translocation of Wildlife Species in Kenya



Kenya Wildlife Service

P. O. Box 40241-00100

Nairobi, Kenya

Telephone: +254 (20) 6000800 or 6002345

Mobile: +254 726610508/9 or 736663421

Fax: +254 (20) 6003792

Website: www.kws.go.ke

Email: kws@kws.go.ke , research@kws.go.ke

June 2019

DOCUMENT CONTROL

Document Title	Guidelines for Translocation of Wildlife Species in Kenya
Identification No.	KWS/BRP/001/2018
Issue No.	1
Revision No.	1
Date of Issue	June 2019
Office of Origin	Directorate of Biodiversity Research and Planning
Approving Authority	Director General
Signature	
Distribution List	<ol style="list-style-type: none">1) Director, Parks and Reserves2) Deputy Director, Security3) Head- Veterinary and Capture Services4) Head, Species Conservation and Management5) Head, Capture and Translocation6) All Heads of Departments, Biodiversity Research and Monitoring7) Management Representative

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	4
1. INTRODUCTION	5
2. CONTEXT	5
3. DEFINITION OF TERMS.....	6
4. AIMS AND OBJECTIVES OF TRANSLOCATION	6
4.1 Aims	6
4.2 Objectives	6
5. DECISION MAKING PROCESS.....	7
6. LOGISTICAL COORDINATION AND PLANNING.....	8
6.1 Multidisciplinary coordination committee	8
6.2 Planning activities	10
6.3 Planning the timing of a translocation	12
7. PRE-TRANSLOCATION ASSESSMENTS	12
7.1 Feasibility and biological assessments	12
7.2 Socio-economic assessments.....	14
7.3 Identification of source populations	14
7.4 Release of captive animals	14
8. PERSONNEL, CAPACITY AND EXPERIENCE	15
9. VETERINARY CONSIDERATIONS.....	16
10. IMPLEMENTATION OF THE TRANSLOCATION	16
10.1 Capture and loading.....	16
10.2 Transportation	17
10.3 Release.....	18
11. DOCUMENTATION	18
12. POST-RELEASE ACTIVITIES	18
13. REFERENCES.....	19

ACKNOWLEDGEMENTS

This guidelines were compiled by Dr. David Ndeereh, Dr. Mathew Mutinda and Mr. Linus Kariuki.

Much of the detailed knowledge on translocation was derived from various sources that we would like to acknowledge. These include: Towards a professional position on translocation of problem wildlife (Craven S., Barnes T. and Kania G. 1998); Guidelines for the *in-situ* re-introduction and translocation of African and Asian rhinoceros (Emslie R. H., Amin R and Kock R. 2009); Guidelines for re-Introductions (IUCN 1998); Guidelines for reintroductions and other conservation translocations (IUCN/SSC 2013); Capture, care, accommodation and transportation of wild African animals: the capture and care manual (McKenzie A.A. 1993); A policy for conservation translocations of species in Britain (McLean, I.F.G. 2003); The theory and practice of catching, holding, moving and releasing animals (Parker K.A., Dickens M.J., Clarke R.H. and Lovegrove T.M. 2012); and Animal translocations: what are they and why do we do them (Seddon P.J., Strauss W.M. and Innes J. 2012).

We are grateful to the IUCN SSC African Rhino Specialist Group (AfRSG) through its chair Dr. Mike Knight for agreeing to review the guidelines and providing an opportunity for KWS to make a presentation during the group's 13th meeting held in Namibia in February 2019. The comments collated by Dr. Jacques Flamand from the members of AfRSG and Jo Shaw from WWF Kenya, WWF South Africa, WWF Nepal, WWF UK and WWF International assisted a lot in developing these guidelines. We also thank Dr. Piere Nell and Dr. David Zimmerman for reviewing the guidelines.

We acknowledge all the stakeholders including members of the public who submitted their comments following invitation for comments made through a press release in January 2019.

1. INTRODUCTION

The Kenya Wildlife Service (KWS) is the body corporate established by the Wildlife Conservation and Management Act of 2013 to conserve and manage wildlife in Kenya. In performing its functions, the Service undertakes translocations for the management of wildlife populations for various purposes.

The guidelines have been developed in response to the increasing occurrence of translocations in Kenya to address various wildlife management needs. They are intended to ensure that translocations achieve their intended purposes by acting as a guide for procedures useful to translocation activities.

Noting that a translocation exercise can be a lengthy, complex and expensive process often occurring under changing conditions, the guidelines do not represent an inflexible code of conduct. Where prevailing circumstances are justified, they can be modified to ensure that each translocation achieves the intended objectives.

The guidelines are based on best practices adopted from the IUCN translocation guidelines modified to suit local conditions and needs. In all instances, the welfare and care of the animals must be paramount.

2. CONTEXT

The increasing number of translocations led to the development of these guidelines to guide the planning, implementation, monitoring and documentation of translocation programs to ensure that they have the highest chance of success and to maximise their contribution to wildlife conservation. The primary audience of these guidelines are decision makers, wildlife managers, scientists and veterinarians. The guidelines are to be implemented in the context of the Wildlife Conservation and Management Act of 2013 and other relevant legislations and policies pertaining to biodiversity conservation and sustainable management of natural resources in Kenya.

There are numerous factors that can influence the outcome of a translocation and which can either lead to success or failure of the project. The animals' body conditions immediately prior to and post-release is an important factor for the successful translocation outcome. As such, all efforts should be made to ensure that the animals are released into optimal habitat and in good body conditions. According to Parker *et al.* (2012), there are three common themes to successful translocation projects, namely:

- i) They are carefully planned and carried out by a multidisciplinary team;
- ii) The translocation planning and methodology is underpinned by an intimate biological and ecological knowledge of the translocated species coupled with appropriate husbandry and release techniques; and
- iii) Stress is often cited as a significant reason for translocation failure and is thus considered both explicitly and implicitly (directly and indirectly)

3. DEFINITION OF TERMS

Translocation is the deliberate and mediated movement of wild animals from one location to another. The broader meaning of the term includes:

- i) Introduction: The deliberate translocation of a species into the wild in areas where it does not occur naturally and has not occurred historically but within an appropriate habitat and eco-geographical area, for the purpose of conservation. This is a feasible conservation tool only when there is no remaining area left within a species' historic range;
- ii) Re-introduction: The deliberate translocation of a species into the wild in areas where it was indigenous in historic times but is no longer present. This is an attempt to establish a species in an area which was once a part of its habitat and has since been extirpated or extinct. ("Re-establishment" is a synonym); and
- iii) Re-enforcement/Re-stocking/Supplementation: The translocation of animals (species) to an area with an already existing population of con-specifics to improve the genetic makeup or increase in the numbers.

4. AIMS AND OBJECTIVES OF TRANSLOCATION

4.1 Aims

The principle aims of any translocation are:

- i) A high post-release survival of translocated animals;
- ii) Establishment of a viable and free-ranging population of the species in the release site; and
- iii) To reverse low or negative growth rates of source populations

Translocations are now well entrenched as a conservation tool, with numbers of animals of a range of different species being released in re-introduction and re-enforcement projects increasing each year (Seddon *et al.*, 2012). These projects aim to have:

- i) High post-release survival of the animals being translocated;
- ii) Settlement in the release site; i.e. successful adaptation to new local conditions; and
- iii) Persistence through successful breeding, recruitment and population increase.

4.2 Objectives

The objectives of a translocation may include either or a combination of the following:

- i) To enhance species recovery programs;
- ii) To maintain and/or restore natural biodiversity;
- iii) To re-colonise former habitats of the species (re-introduction);

- iv) To stop or reduce habitat destruction at the source site;
- v) To increase growth rates of populations of endangered species at the source site;
- vi) To mitigate human-wildlife conflicts;
- vii) To provide long-term economic benefits to the local and/or national economy;
- viii) To promote conservation awareness; and
- ix) To support vulnerable populations under security and diseases threats

5. DECISION MAKING PROCESS

Every planned translocation should be accompanied by a proposal. The proposal should cover all relevant matters, including amongst others:

- The IUCN Red Data Book status of the species in question;
- Justification for the translocation including clear objectives, identification and assessment of risks and measures to mitigate such risks, and measures of performance and potential benefits to conservation;
- Sufficient information about the target species including relevant knowledge about the biology, behaviour and ecology of the species, its past and present distribution and conservation status;
- Source and release environment (habitat, water and security) and existing populations (where relevant);
- The need to manage the numbers in a population at the source site;
- Post-release monitoring and research methodology; and
- Realistic budget and identification of sources of sufficient resources to complete the entire process.

The proposals should be developed by the proponent and in case of proposed translocations emanating from KWS, by the Department responsible for species conservation

Proposals from outside KWS should be forwarded to the respective Conservation Area management which should conduct an assessment and prepare a report with clear recommendations. The area management should then forward the report and the proposal document to KWS headquarters within one month upon receiving the proposal document.

The Species Introduction and Re-introduction Committee should then review the assessment report and the proposal document with main focus on the proposed translocation's contribution to wildlife conservation and management. In undertaking this task, the committee may consult relevant species steering committees for their expert inputs. The committee should submit a report to the KWS Executive Committee within one month after receiving the report and proposal from conservation area management.

The Director General shall make the final decision on translocation of non-endangered species after deliberations of the Species Introduction and Re-introduction Committee's report by the Executive Committee.

The decision to translocate elephants and rhinos shall be made by the Board of Trustees upon receiving and reviewing the report from the Executive Committee. In the event the Board of Trustees will be in transition, the final decision shall be made by the Cabinet Secretary responsible for wildlife conservation and management

Translocations requiring approval shall also include releases of captive (hand- raised) wildlife to the wild, with specific consideration of inter- and intra-specific challenges associated with these releases.

Exempted from this process will be emergency translocations of animals involved in conflicts with humans that require immediate response that may not allow for a detailed translocation program. Such cases are justified by the objective of removing the animals from a demonstrably unavoidable situation that threaten human life and property. Such decisions shall be made by the Director-General.

6. LOGISTICAL COORDINATION AND PLANNING

A translocation is a lengthy and complex undertaking whose success or failure depends on accurate planning and effective coordination at all stages of the process. Every translocation therefore should be planned and coordinated by a multidisciplinary team that will be responsible for planning all aspects of the process. A clear adaptive project plan covering the entire process and identifying the roles and responsibilities of all involved is fundamental to the success of translocations.

6.1 Multidisciplinary coordination committee

Upon approval of a translocation, the Directorate responsible for implementation should constitute a multidisciplinary coordination committee that should bring together technical expertise in all aspects of the operation from relevant departments at KWS and stakeholders. The committee may co-opt external expertise depending on the nature and scope of the translocation.

The overall team leader will be the Head of the Directorate responsible for implementing translocation projects. S/he should be supported by sub-team leaders from the other disciplines. The overall team leader should be responsible for coordinating the translocation exercise whereas the sub- team leaders should be responsible for coordination of activities related to the areas of specialization including providing relevant scientific and technical inputs into the discussions by the committee so as to avoid making poor decisions regarding any aspect of the project.

The overall team leader should also coordinate with other relevant departments and provision will be made for publicity and public education about the project to ensure

that it is fully understood, accepted and supported by the local communities at the donor and recipient sites.

The composition of the committee will depend on the scope of the project. Its membership may include but not limited to persons drawn from the following backgrounds:

- i) Scientists (Ecologists, species Scientists (Ecologists, species biology specialists, environmental experts including expertise in habitat suitability assessments);
- ii) Security;
- iii) Protected area managers (source and recipient site);
- iv) Veterinary doctors;
- v) Capture personnel;
- vi) Trained boma or animal husbandry personnel where appropriate
- vii) Air Wing ; and
- viii) Other technical personnel will be co-opted on a need basis.

Other departments that may be incorporated during planning and implementation of a translocation will include:

- i) Finance and/or funding bodies;
- ii) Central workshop;
- iii) Procurement ; and
- iv) Corporate Communication

The responsibilities of the committee should be but not limited to the following:

- i) Coordinate all phases of the translocation exercise;
- ii) Ensure that relevant stakeholders including government authorities, local communities, other stakeholders and landowners (where applicable) approve the project;
- iii) Draw up a budget and secure adequate funding for all project phases. The budget should cover the planning, execution and monitoring (pre- and post-translocation) phases;
- iv) Itemise and obtain the equipment and materials needed;
- v) Ensure the relevant department obtains formal documents showing support of relevant government, neighbouring community and other structures (where applicable);
- vi) Ensure there is a pre-capture plan in place defining potential release areas for the species; and
- vii) Manage the media coverage of the operation to ensure desired perception by all key stakeholders

6.2 Planning activities

The multidisciplinary coordination committee should ensure adequate funding is secured for all the translocation project phases prior to beginning implementation.

The departments responsible for species management, ecological monitoring and security should design and implement pre- and post-release programmes in consultation with conservation areas' management of the source and recipient sites to ensure the stated objectives of the operation are achieved. The programmes should have capability to collect and analyse scientific data as required.

The Veterinary Services Department should (and where applicable in consultation with the department responsible for species management) develop capture, translocation and release protocols that should conform to international standards to guide execution of the project. These should include but not be limited to:

- Capture, loading and transportation procedures;
- Release method (hard or soft). The decision to use a hard or soft release method is dependent upon a number of factors including, but not limited to, the distance that the animals must travel, the similarity in habitat at source and release sites, the social structure of the group and how well the animals know each other. Where possible a range of external expertise should be sought to determine the most appropriate approach. If soft release, the following should be considered:
 - The holding facility (boma) design for the species to follow recognised best practices to provide acceptable standards of animal welfare. These should include spatial requirements and materials to avoid animals injuring themselves, and the provision of suitable food and water for the species;
 - Appropriate holding period to allow animals settle and get used to new environmental conditions, including food and water;
 - A veterinarian should be regularly visiting to assess the health status of the animals during the holding period. However during the first few days there should be a veterinarian on site at all times to address any emergencies as this is the most crucial stage as the animals acclimatise to their new environment; and
 - Trained personnel with experience on animal husbandry and an understanding of the requirements of the relevant species should be stationed at the boma at all times during the holding period to ensure animals are provided with all their needs.

Every translocation should adhere to internationally accepted standards for animal welfare, as well as comply with the legislation, regulations and policies on animal welfare in Kenya. Every effort should be made to reduce stress. Stress in translocated animals may occur during capture, handling, transport and holding in bomas, including through confining unfamiliar individuals in close proximity. Soft release strategies may increase stress in wild-caught animals by prolonging their holding in bomas.

Tranquillisers should be used wherever appropriate to reduce stress during transportation and holding periods in bomas.

The exercise should not commence unless all relevant studies, especially habitat and security aspects, have been conducted and reports approved by the multidisciplinary coordination committee. All infrastructure, equipment and materials must be of approved standards and in place in advance.

Pre-capture monitoring should be undertaken in advance of the proposed translocation date to ensure that the most suitable animals in terms of demographics, social structure and genetic variation are selected for translocation and can be identified and located as easily as possible. Very old and very young animals are not generally suitable for reintroductions.

The head of veterinary services should ensure all personnel requirements are available throughout the operation, as well as sufficient capture drugs (including antidotes and necessary emergency pharmaceuticals)

Procurement for all requirements should be carried out well before the target date of the operation. Drugs and darting equipment may be subject to certain legislative restrictions which may increase the time delays and therefore their procurement will be initiated several months before the translocation.

Any movement permits that may be necessary to translocate the animals (e.g. veterinary or CITES) should be arranged well beforehand.

All access roads will be surveyed to determine serviceability and a report made to the coordination committee

All equipment needed for the operation should be made available and in good working condition at least one month before the translocation. This should include the following:

- Any specialized equipment or infrastructure such as fencing or bomas that will need to be built to specification prior to the operation;
- Transport (aircrafts and vehicles) for delivery of personnel, equipment and animals; and
- Contingency planning where possible to respond to unexpected complications.

Where applicable, a scenario planning exercise considering risks to successful translocations which are likely to escalate in future, such as climate change, human migration and encroachment or rapid expansion of infrastructure may be considered.

A suitable camping site with sufficient space to accommodate all equipment and personnel, accessibility to water and close to the capture site should be selected at the source site.

During translocation, the route should be selected carefully to allow for the shortest possible driving time whilst considering the safest route. It should avoid towns and populated places where curious onlookers may increase stress to the animals and compromise their own safety. It should however take considerations on the need for fuel stops.

Media coverage of the operation at the capture and release sites should be managed by the head of the coordination committee and Corporate Communications department so that it does not stress the animals and compromise their safe release. In particular, media and VIP interferences should be avoided at all costs. People safety will be assured.

6.3 Planning the timing of a translocation

As much as possible, unless with justified reason, translocations should be undertaken when the ground is dry so as to avoid injuries to animals and personnel, as well as damage to vehicles and equipment. Dry ground also makes areas more accessible to the capture vehicles. It is preferable to plan captures for when the vegetation is less dense and leaf cover low so as to improve the helicopter team's ability to locate and keep animals visual from the air where helicopter darting is used. However, the availability of food is also a consideration for browsing animals.

The end of the dry season and beginning of the wet season are inappropriate times for capture because of the poor condition of the animals. It is recommended that translocations are planned at the end of the wet season/ the start of the dry season when the body conditions of animals' are expected to be fairly good and the access roads have dried to facilitate capture and transport. Every consideration should be made to compromise between condition of animals and good field conditions that will allow capture and transport.

Capture of animals should be timed to coincide with the cooler months of the year where possible and cooler hours of the day (ideally below 25°C) to avoid the risk of hyperthermia and other heat related complications. Capture operations should begin as early in the day as possible when temperatures are cooler and a clear cut off time for darting be agreed well prior to dusk.

7. PRE-TRANSLOCATION ASSESSMENTS

7.1 Feasibility and biological assessments

The Head of the Directorate responsible for implementation of translocation projects should coordinate and undertake studies that should inform the feasibility of any proposed translocation. These assessments should be carried out in both the source and recipient environments and populations. Feasibility studies will cover the full range of relevant biological and non-biological factors. These assessments should consider the following:

- The justification and the objectives of the proposed translocation;
- Identification of source and recipient areas as well identifying the number, sex and age structures of animals to be removed from the source population(s);
- Potential effects of translocated animals on the ecosystem at the donor and recipient areas;
- Analysis of preferred habitat by the concerned species throughout all seasons of the year which would guide long- term population management. Translocations should only take place where the habitat and landscape requirements of the species are satisfied, and likely to be sustained for the foreseeable future. The area should have sufficient carrying capacity to sustain growth of the translocated population and support a viable (self-sustaining) population in the long term (i.e. Ecological Carrying Capacity established to ensure sustained growth);
- Social behaviour, home range size, shelter and predators of species of concern
- Food requirements, foraging and feeding behaviour including inter- and intra-specific competition;
- Identification and elimination, or reduction to a sufficient level, of previous causes of decline. These could include disease; poaching; conflicts with humans; pollution; poisoning; predation; and habitat loss;
- Water availability through the seasons and a water quality analysis at source and recipient areas must be evaluated. Translocations should only be undertaken only if water quality at recipient site is ascertained to be safe for consumption by animals;
- For migratory species, studies should include the potential migratory areas.
- The translocation exercise should be in conformity with the requirements of applicable environmental management and compliance regulations, including the need for movement permits (veterinary and CITES);
- A disease risk assessment involving screening for any disease organisms in translocated animals including, when possible, closely related species in the recipient areas should be instituted so as to ensure:
 - Animals are as much as possible free from infections or contagious pathogens and parasites before transportation; and
 - Recipient site is free from diseases absent at the source site and to which the animals have no acquired immunity
- Identification and elimination of security threats and the short- and long-term protection of translocated animals (there should be adequate security especially in cases of endangered species);
- Assessments into previous translocations outcomes of the same or similar species, and undertake consultations on various expertise; and
- The need for monitoring devices (collars, transmitters) to monitor the animals after release must be considered according to each species. In the case of endangered species, these assist enormously in assuring the security of each animal.

7.2 Socio-economic assessments

The following will be considered prior to implementing a translocation:

- Assessment of the socio-economic impacts of translocations on local communities; and
- Assessment of attitudes of local communities to the project to ensure long term protection of the translocated animals, especially in areas prone to human-wildlife conflicts and poaching for the communities to fully understand, accept and support it.

7.3 Identification of source populations

Individuals should only be removed from a wild population after the effects of the translocation on the donor population have been assessed, and after it is guaranteed that these effects will not be negative.

Optimal number and composition of individuals to be translocated will be determined so as to promote establishment of a viable population at recipient site. This requires consideration of a balance of demographic (sex and age), social and genetic factors.

Where animals are to cross international boundaries, appropriate veterinary measures should be undertaken including quarantine arrangements and obtaining required export and import permits to ensure health of the animals.

7.4 Release of captive animals

Noting that hand-raised animals may be particularly vulnerable to predation, injury or stress in their new environments, such animals should be rehabilitated sufficiently so as to give them an opportunity to acquire the necessary skills to enable survival in the wild. These may include through training in their captive environment or at the release site.

Care will be taken to ensure that potentially dangerous captive animals such as large carnivores are not so confident in the presence of humans that they might be a danger to communities and/or their livestock.

Appropriate post-release monitoring strategies should be designed to assess the achievement of objectives of translocated hand-raised wildlife including fitting collars and transmitters.

Release of hand-raised animals should always take a precautionary approach the objective being the contribution of the animal to the conservation value of the species. An animal should be able to live independently in the wild before approval is given.

8. PERSONNEL, CAPACITY AND EXPERIENCE

Clear management hierarchy is vital to a successful translocation. There must be a clear line of command and the roles and duties for each team member should be made clear to ensure strict discipline, order and precision during the exercise. Briefings should be provided to all personnel prior to translocation exercises, clarifying the above hierarchy and ensuring animal welfare takes precedence

All personnel must be aware of the needs of the species and the individual animals and should have a caring attitude towards the animals under their care.

The composition and number of personnel should depend on the scope and nature of the translocation including the species and number of animals being translocated, and the capture method (chemical or physical capture). The composition however, should at the minimum comprise of the following personnel, though not all may necessarily be at the capture site simultaneously):

- i) An experienced wildlife veterinarian;
- ii) Experienced capture personnel (Capture warden and rangers);
- iii) Trained boma or animal husbandry personnel where appropriate;
- iv) In the case of rhinos, adequate security personnel;
- v) Veterinary and laboratory technicians who can assist in monitoring the immobilised animal, collect samples of blood, parasites and tissue following established protocols;
- vi) Experienced drivers and plant operators of appropriate vehicles and plants, respectively;
- vii) Pilots(helicopter and fixed wing as appropriate);
- viii) Vehicle and plant mechanics to handle any unforeseen breakdowns;
- ix) Artisans (if using wooden crates) and welders (if using metal crates);
- x) Representatives from the department responsible for species management to assist in locating and identifying animals;
- xi) Logistics personnel e.g. procurement officer, finance officer, administrative assistant;
- xii) Research technicians/biologists/field staff who can take photographs, measurements, fill translocation records' forms with details of capture/release location, ID of animal, age and sex of animals, planned destination of animal, and other relevant details. Additionally, technicians who can fit monitoring devices such as collars, radio horn transmitters and transponders, make ear-notches according to plan, etc. will be required where necessary;
- xiii) Media liaison and management personnel; and
- xiv) The team should include a trained first aid personnel to act as a human emergency medical unit if required.

Non-essential personnel should be kept to a minimum and will have clear instructions on where to be at every stage of the operation.

9. VETERINARY CONSIDERATIONS

Veterinary concerns during translocations are mainly focused on the immobilisation and management of animals during the physical intervention phases of translocations to ensure optimal health and well-being of the animals being translocated. However, despite all veterinary precautions, some mortality as a result of translocation may be inevitable.

All cases of death should be reported to KWS management. Any mortalities during or in the post-release phase should be investigated and a post mortem examination done to determine the cause(s) of death.

In some instances during capture and translocation, there will be rare occasions when an animal needs to be destroyed, and the most likely reason is severe injury during translocation. Where the injury is likely fatal and cannot be treated, it will then be a matter of animal welfare and the decision to euthanase should be left to the veterinarian responsible at the time of the injury as this is the “best practice”. KWS management should be informed by the overall veterinarian of any decisions to euthanize any animal.

10. IMPLEMENTATION OF THE TRANSLOCATION

The health and welfare of the animal must be the paramount concern during the entire capture, transport, release and post-release monitoring process and this should be the responsibility of the lead veterinarian.

10.1 Capture and loading

The veterinary and capture teams should devise appropriate capture methods depending on the species, ground conditions (terrain) and available equipment. These methods are either through chemical or physical restraint for instance using nets or mass capture systems. The method should ensure safety and welfare of the animals and attainment of the translocation objectives.

Capture using physical methods should use helicopters and vehicles depending on the number and species of animals.

If using chemical capture, appropriate drug combinations and dosage rates must be used for each species. The drugs and dosage rates will be influenced by factors such as age, sex, health status, body conditions and terrain. The vet teams should ensure that they are familiar with idiosyncrasies of the particular species being dealt with and recognise the need to be flexible between individuals within a single species.

The number of animals to be immobilised at any one time will be determined by the number of veterinary personnel (veterinarians, veterinary technologists and laboratory technicians), vehicles and equipment available for recovery and loading as well as the capacity to follow darted animals and not lose them.

The method of dart delivery will vary according to the situation on the ground and can either be from a helicopter, vehicle or on foot. For elephants and rhinos, this will be from a helicopter but in emergency situations, they can be darted from vehicle or on foot.

The type of dart and projector (rifle) used will be decided according to the preference of the vet involved. Darting should always be undertaken by an experienced wildlife vet. Hyalase may be added into the dart to shorten the induction times.

Appropriate reversal agents for the immobilisation drug(s) used at recommended dosage rates should be used to revive the animals after loading. Tranquilisers (short and long-acting) should be used to calm the animals during transportation.

The Chief Veterinary Officer or his designated representative should be the overall veterinarian in-charge of the capture exercise.

For anaesthetically compromised animals, the veterinary officer assigned the animal should liaise with the veterinarian in-charge with regard to emergency interventions, expedited recovery or any other advice including reviving the animal without delay where expedited recovery and emergency interventions have failed

Regular debriefing meetings should be held during the operation. The method and frequency of the meetings should be modified according to the prevailing circumstances and needs.

10.2 Transportation

Animals should be transported in secure containment with clear specifications on designs and numbers for the species involved so as to minimise stress and injuries.

Transport plans should be instituted with special emphasis on ways to minimise stress and avoid injuries or illnesses during transit. This should include departure as soon as the animals are loaded and stops en route will be as brief and infrequent as possible. Animals tend to settle when the vehicle is moving and unnecessary stops disturb them. Nevertheless, some regular visual inspection stops are necessary, especially for rhinos, to ensure all is well.

Qualified and experienced personnel should accompany animals during transport and be prepared to deal with emergencies (veterinary emergencies, escapes, vehicle breakdowns and security). In the case of rhinos, adequate security during transport should be assured.

Drivers should be briefed at the start of the operation on driving tips to avoid injuries to the animals. They should be told to avoid sharp breaks and accelerations, to drive slowly on rough roads, etc. Two drivers should be used for long journeys to ensure a rapid, uninterrupted trip and to avoid problems with driver fatigue.

Very aggressive species should be transported in single crates. Females from many species can be transported together safely, while the males must either be separated or tranquillised to avoid inflicting injuries on one another.

Animals should be tranquillised during transportation with short and long acting tranquilisers depending on the length of transportation time.

10.3 Release

Offloading at the release site should be done without any delay upon arrival so as to avoid keeping animals standing unnecessarily in the transport crate/container. Media and VIP visits should not be allowed to delay offloading. There will be constant inspection of animals to ensure their safety during transportation.

Animals should be released according to agreed protocols to ensure the welfare and the species concerned. Depending on the species involved, the following release strategies should be adopted:

- i) Soft release- animals held in enclosures at or near the release site prior to release, to assist them in adjusting/acclimatising to their new environment.
- ii) Hard release- animals not held in enclosures prior to release except during transport. Animals are immediately released on arrival at the recipient site. Sometimes, partial immobilization/tranquillization on release may be considered. When hard released directly into the field the minimum amount of personnel and equipment should be involved to reduce disturbance impacts.
- iii) Other release strategies may include behavioural training including hunting and feeding particularly for captive animals.

Development of conservation education for long-term support by local communities, public relations through the mass media and in local community and involvement where possible of local communities in the translocation project will be considered

11. DOCUMENTATION

The translocation should be recorded and documented at each stage in sufficient detail for future reference.

Records of all translocations should be deposited with the appropriate department and should be published in scientific and popular literature whenever possible.

12. POST-RELEASE ACTIVITIES

There should be in place a post-release monitoring strategy of all or a sample of the individuals translocated for a sufficient period of time in order to assess the outcome of the translocation. The monitoring strategy should include other individuals present in the area prior to translocation where applicable.

The monitoring should include studies on the ecological and behavioural aspects, long-term adaptation, collection and investigation of mortalities, interventions (veterinary aid and supplemental feeding amongst other interventions), amongst other studies. Monitoring should be as non-invasive as possible for many species immediately post-release, in order to enable them to establish new home ranges. Monitoring should be integrated with security for high value species.

The results of the monitoring should:

- i) Be provided to the Manager of the Conservation Area in the first instance.
- ii) Determine the success or otherwise of the operation.
- iii) Inform decisions over future translocation proposals for the species concerned
- iv) Be deposited with the relevant department in the Biodiversity Research and Planning Directorate and where appropriate be published in suitable scientific and conservation journals
- v) Be communicated to relevant stakeholders and where appropriate to the media and the wider public

Public relations activities, including education and mass media coverage should be undertaken for an appropriate period of time to ensure support of the project by the local communities and other key stakeholders

Resources to undertake this monitoring should be included in the budget at the inception of the project.

13. REFERENCES

- Craven S., Barnes T. and Kania G. (1998). Towards a Professional Position on Translocation of Problem Wildlife. Working Group Report: Position on Wildlife Translocation. *Wildlife Society Bulletin* 26(1): 171-177.
- Emslie R. H., Amin R & Kock R. (editors) (2009). *Guidelines for the in-situ Re-introduction and Translocation of African and Asian Rhinoceros*. Gland, Switzerland: IUCN.
- IUCN (1998). *Guidelines for Re-Introductions*. Prepared by the IUCN/SSC Re-Introduction Specialised Group. IUCN, Gland, Switzerland and Cambridge, UK
- IUCN/SSC (2013). *Guidelines for Reintroductions and Other Conservation Translocations*. Version 1.0. Gland, Switzerland: IUCN Species Survival Commission. www.iucnsscrg.org
- McKenzie A.A. (Ed) (1993). *Capture, Care, Accommodation and Transportation of Wild African Animals*. The Capture and Care Manual pp 193-208.
- McLean, I.F.G. (2003). *A Policy for Conservation Translocations of Species in Britain*. Published by the Joint Nature Conservation Committee (JNCC) on behalf of The Countryside Council for Wales, English Nature and Scottish Natural Heritage.

Parker K.A., Dickens M.J., Clarke R.H. & Lovegrove T.M. (2012). The theory and practice of catching, holding, moving and releasing animals. In *Reintroduction Biology: integrating science and management*, Eds J.G. Ewen, D.P. Armstrong, K.A. Parker & P.J. Seddon, Chapter 4. Wiley-Blackwell, Oxford, UK.

Seddon P.J., Strauss W.M. & Innes J. (2012). Animal translocations: What are they and why do we do them. In *Reintroduction Biology: integrating science and management*, Eds J.G. Ewen, D.P. Armstrong, K.A. Parker & P.J. Seddon, Chapter 1. Wiley-Blackwell, Oxford, UK.

Cover Photograph: Providing solutions to Human-Elephant conflicts in Narok County: A case of successful translocation of over 200 elephants in September 2011.