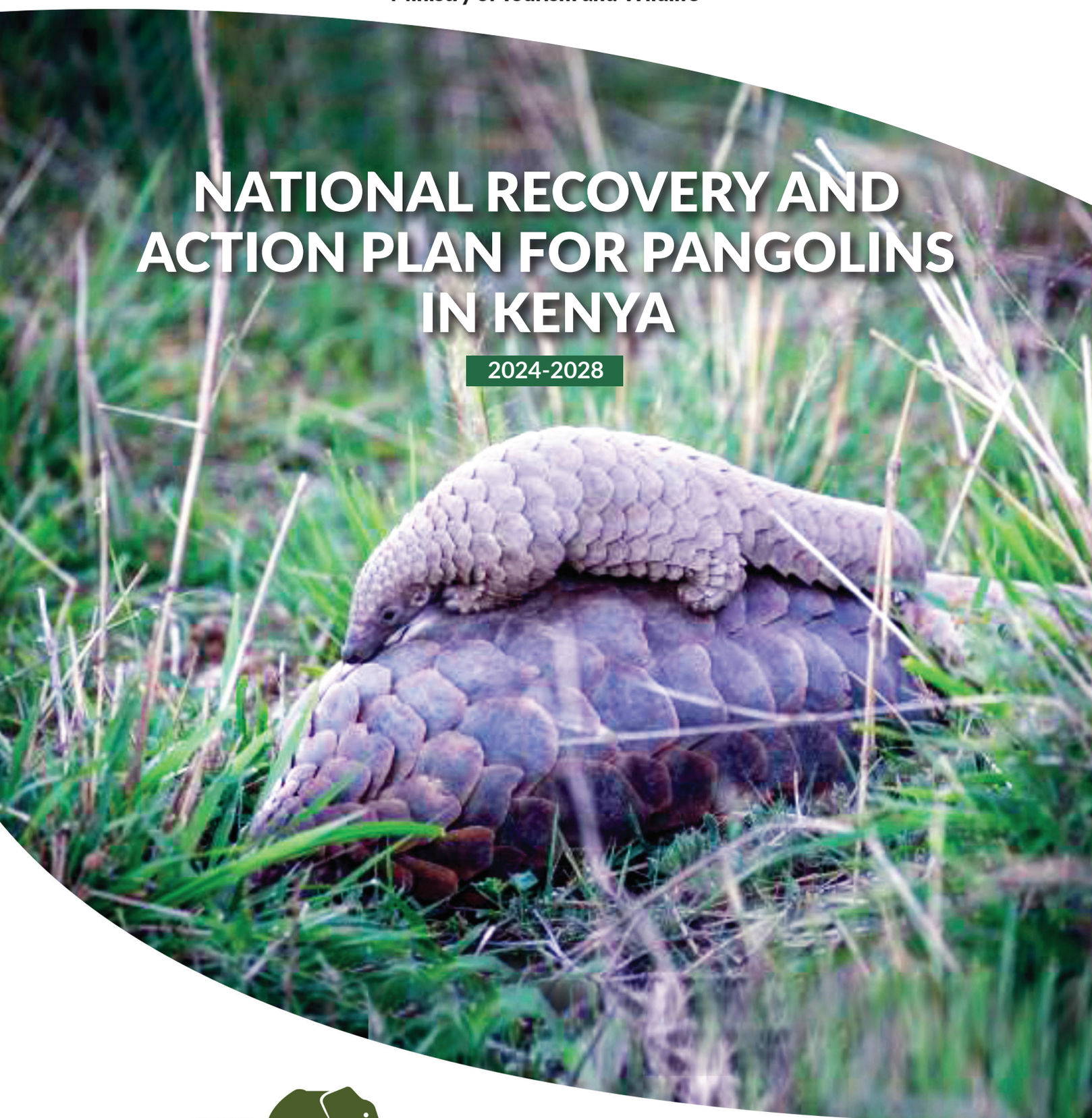
Ministry of Tourism and Wildlife



# NATIONAL RECOVERY AND ACTION PLAN FOR PANGOLINS IN KENYA

2024-2028

KENYA WILDLIFE SERVICE

# Pangolin species occurring in Kenya

Photo by the Pangolin Project

Temminck's Pangolin (*Smutsia temminckii*)

Giant Pangolin (*Smutsia gigantea*)

Photo by Jira Prochazka

White-bellied Pangolin (*Phataginus tricuspis*)

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# Foreward

Kenya is endowed with diverse fauna and flora that forms the country's unique heritage. However, the survival of 33 mammalian, 28 avian and 356 plant species is threatened mainly due to increased human population and associated land-use changes, climate change, habitat loss and fragmentation, poaching, illegal wildlife trade and human-wildlife conflict. The Government has put in place the necessary laws and policies to protect the country's wildlife resources for sustainable development and for posterity.

Specifically, the wildlife policy aims to enhance species conservation through active management of threatened species. The Wildlife Conservation and Management Act, 2013 (WCMA – 2013) provides for the protection and conservation of wildlife through development of species-specific recovery plans for all species listed in the Sixth Schedule. Further, the National Wildlife Strategy (2018-2030) gives a roadmap for transforming wildlife conservation by 2030, and outlines goals and strategies anchored on four key pillars which include: resilient ecosystems, engagement by all Kenyans; research and innovation; and sustainability. It is against this background that this National Recovery and Action Plan for Pangolins in Kenya (2024-2028) was developed. The plan will guide conservation actions for the three pangolin species found in Kenya to ensure their long-term protection. It provides a framework within which all stakeholders can work together to stop the declining trend in the three species.

Globally, there are eight pangolin species, with three species being found in Kenya. The three pangolin species are classified by the International Union for Conservation of Nature (IUCN) as: Giant Pangolin *Smutsia gigantea* (Endangered), White-bellied Pangolin *Phataginus tricuspis* (Endangered) and Cape or Temminck's Pangolin *Smutsia temminckii* (Vulnerable). Due to rampant poaching, trafficking and trade in pangolins and their body parts (specifically scales) globally, the pangolin is listed and protected under Appendix I in the Convention on International Trade in

Endangered Species of Fauna and Flora (CITES).
In addition to the commitment to curb poaching and illegal trade of pangolins within and on transit through Kenya, formulation of this recovery and action plan is motivated by the need to resolve numerous knowledge gaps such as pangolin population sizes, poor understanding of their biology and habitat requirements as well as the cultural beliefs associated with these unique animals.

This recovery and action plan aims to guide the conservation of three pangolin species in Kenya. The plan identifies threats facing the species and guides on strategic interventions required to address such threats in order to effectively conserve and manage pangolins and their habitats. This will be achieved through a set of objectives and activities outlined in the plan for which a robust implementation and coordination framework has been developed.

The Ministry of Tourism and Wildlife appreciates the efforts by all stakeholders involved in the conservation and management of pangolins in Kenya. I encourage our strategic partners and all stakeholders to work together to protect our pangolins, their habitats and landscapes so as to achieve the plan's vision, which is ***"To have well conserved viable wild populations of the three species of pangolin occurring in Kenya as a valued national and world heritage"***

**Hon. Dr. Alfred. N. Mutua, M.B.S., E.G.H.**
Cabinet Secretary
Ministry of Tourism and Wildlife

# Preface

Pangolins are among Kenya's most elusive species and yet are an important natural heritage that play a vital ecological role of controlling termites in the ecosystems where they occur. However, the three Kenyan pangolins species face widespread decline across their range due to illegal poaching and trade, habitat loss and general change in land use.

This National Recovery and Action Plan for Pangolins in Kenya provides a foundation for building conservation efforts and enhancing our conservation effectiveness for these three species. The plan has been developed through a consultative process that involved technical experts, communities, and conservation practitioners from governmental and non-governmental organizations.

**The overall goal of the action plan is** ***"To secure and manage Kenya's pangolin populations and their habitats through combating poaching and illegal trade within and transiting through the country, knowledge generation and enhancing public awareness on the plight of the species."***

This Recovery Plan has identified threats facing pangolins and prescribes key actions that should be taken to realize their population recovery. Key among the objectives of the plan is the urgent need to combat poaching of and suppress illegal trade in pangolins, to consolidate efforts among all stakeholders, and continuous monitoring to establish population status and distribution across landscapes through a national and regional (i.e. range-based) coordination framework.

There are six strategic objectives that have been formulated to guide the implementation of this Recovery Plan. The Implementation of this plan will require financial, human and material resources and we call upon all stakeholders including the County Governments, local and international stakeholders,

development partners, and local communities to team up with the government in support of the identified conservation actions.

I call upon all stakeholders to join the government in realizing our collective goal of securing the survival of pangolins for the benefit of current and future generations.

**Silvia Museiya, CBS**
Principal Secretary
State Department of Wildlife, Ministry of Tourism and Wildlife

# Acknowledgements

This National Recovery and Action Plan for Pangolins in Kenya was developed within a common framework for the conservation of endangered species in Kenya as guided in section 49 of the Wildlife Conservation and Management Act, 2013.

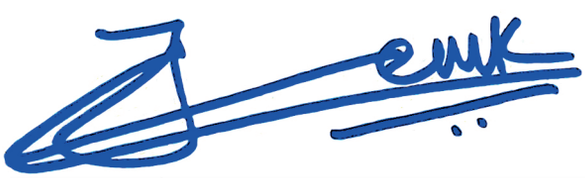
It incorporates both national and international frameworks for the species' conservation. The Plan is also anchored on a consultative and collaborative process. The implementation of the strategy will only be successful through the collaboration of all Kenyans and partners both locally and internationally.

I would like to thank all the communities, landowners who support wildlife on their land and all the conservation stakeholders who remain committed to pangolin conservation and provided valuable input and insight into the development of this Action Plan during consultative workshops.

I acknowledge the support of the National Pangolin Technical Committee (NPTC) who, working with the Technical Consultant, offered instructive guidance in developing this Recovery and Action Plan based on stakeholders' views. I alsoacknowledge the valuable input and contributions from the technical steering team led by the Kenya Wildlife Service (KWS), Wildlife Research and Training Institute (WRTI), National Museums of Kenya (NMK) and Fauna & Flora. We also acknowledge the technical input from International Union for Conservation of Nature Species Survival Commission Pangolin Specialist Group (IUCN SSC PSG), Worldwide Fund for Nature (WWF), The Pangolin Project and TRAFFIC. Further we also acknowledge the support from the County Governments, communities, institutions of learning and Non-Governmental Organizations within the pangolin range areas who gave their contributions during the stakeholder consultative and validation workshops.

I wish to most sincerely thank Fauna & Flora for financially supporting the development of this very first National Recovery and Action Plan for Pangolins in Africa.

Without the efforts of all those who participated or contributed in one way or another, this Recovery and Action Plan could not have been realized.



**Dr. Erustus Kanga, EBS, HSC**
Director General
Kenya Wildlife Service

# Executive Summary

Pangolins are mammals whose bodies are covered by protective overlapping scales, giving them a reptile-like appearance. These scales are their main protection mechanism as pangolins curl into a tight ball whenever they perceive danger. There are eight species of pangolins globally, four of which occur in Asia and four in Africa. Of the four African pangolins, three are found in Kenya, these are: Temminck's pangolin *Smutsia temminckii* (Vulnerable), giant pangolin *Smutsia gigantea* (Endangered) and white-bellied pangolin *Phataginus tricuspis* (Endangered).

Pangolins are among the most threatened wildlife species due to a high demand for their scales, which drives illegal trading across the world. Despite all the world's eight pangolin species being listed and protected under Appendix I in the Convention on International Trade in Endangered Species of Fauna and Flora (CITES), large-scale trafficking continues globally, with over one million pangolins estimated to have been poached from the wild and illegally trafficked during the last decade. In fact, pangolin species are believed to be the most trafficked wild mammal species in the world today. Kenya has been identified, together with other range states in Africa, as a source and transit country for illegally traded specimens of pangolins, primarily to Asian markets, a trend that is on the rise. This places Kenya in a critical position for influencing pangolin conservation and protection in the region and globally.

The population status and distribution of the three pangolin species found in Kenya has not been fully assessed and documented. In particular, detailed ecological studies (e.g., population sizes, home ranges, movements, habitat preference, etc.) for the three species are scanty. Furthermore, the extent of a local demand for pangolins and their products, prevalence of use, local hunting and trading, is not well documented or understood. The need for a recovery and action plan for Kenyan pangolins arises from the ecological and human induced conservation challenges that currently face these animals, in particular poaching for the illegal trade (in live animals, scales and meat) and habitat loss and degradation. Other serious concerns include absence of protocols to rehabilitate and release live pangolins confiscated from poachers as well as a lack of awareness about pangolins and their conservation needs among law enforcers and the public generally.

Conservation stakeholders in the past have identified the lack of a national pangolin recovery and conservation action plan as a key barrier to the conservation and protection of pangolins in Kenya. Under the leadership of the Kenya Wildlife Service (KWS) and with financial support from Fauna & Flora and collaboration with the National Museums of Kenya (NMK) and the Wildlife Research and Training Institute (WRTI), stakeholders have taken a strategic move to develop a national recovery and action plan. This plan outlines approaches and actions for addressing the knowledge gaps on pangolin biology, ecology, local use and demand, developing management plans of pangolin habitats, and tackling the international trafficking of pangolins through Kenya.

The information used to develop this recovery and action plan was gathered through regional consultative stakeholder workshops, desktop literature review and consultations with experts. Counting on existing capacity and stakeholder synergies, the strategy is envisioned to minimize known threats, generate understanding of the impact of less well-documented threats on pangolins in the country, improve habitat conditions, enhance coordinated stakeholder efforts and strengthen local stewardship to conserve the species. The vision and overall goal for the action plan are as stated below:

**Vision:** *To have well conserved viable wild populations of the three species of pangolin occurring in Kenya as valued national and world heritage.*

**Overall Goal:** *To secure and manage Kenya's pangolin populations and their habitats through combating poaching and illegal trade within and transiting through the country, knowledge generation and enhancing public awareness on the plight of the species.*

The goal and vision of this action plan will be achieved through a suite of six Strategic Objectives for which specific actions have been prescribed. These objectives and their overall targeted outcomes are summarized below.

| Strategic Objectives | Targeted Outcomes |
|---|---|
| **SO1: Fill critical knowledge gaps on pangolin-human dimensions, biology, ecology and threats to support critical conservation interventions of the three pangolin species in Kenya** | Information on biology and ecology of pangolins generated |
| | All current and potential pangolin habitats are identified and mapped |
| | Poaching of pangolins in Kenya for local use and illegal trading within the country are understood |
| | Other threats to pangolins and pangolin habitats are understood |
| **SO2: Combat pangolin crime** | Poaching of pangolin species in Kenya for local use is reduced |
| | Enhanced capacity of law enforcement agencies to suppress illegal trade in pangolins and their body parts |
| | Kenya no longer acts as a transit point for illegal pangolin shipments originating from Kenya or elsewhere in the continent |
| | Process of confiscation of live pangolins during arrests is streamlined to ensure survival of rescued animals |

| Strategic Objectives | Targeted Outcomes |
|---|---|
| **SO3: Ensure habitats suitable for the survival of pangolins in Kenya are secured and well managed** | Pangolin habitats are effectively secured and managed |
| | Threats to pangolin and pangolin habitats reduced |
| | Protocols for monitoring pangolin habitat status and quality developed |
| | Public awareness on pangolins enhanced |
| **SO4: Enhance awareness and build capacity among wildlife law enforcement, local communities and other relevant stakeholders** | Capacity of pangolin conservation among stakeholders enhanced |
| | Pangolin matters prioritized in stakeholders' agenda |
| **SO5: Mobilize adequate resources to implement the activities in the plan** | Adequate resources are made available for effective implementation of actions |
| **SO6: Enhance Coordination and Collaboration in Implementation of the Action Plan** | Functional regional, technical and advisory committees in place |
| | Collaboration between stakeholders strengthened |
| | Coordinated information sharing mechanism in place |

Kenya Wildlife Service will be the overall implementing authority that will monitor and coordinate activities laid out in this action plan and will work closely with the Pangolin Technical Committee (PTC) composed of pangolin experts and researchers, veterinarians, community representatives, conservancy and ranch owners, NGO and civil society representatives, among other stakeholders.

At the site level, Pangolin Range Committees (PRCs) will be established in five regions of Kenya known to be strongholds for different pangolin species, thus: Greater Maasai Mara/Mau complex; Tsavo Conservation Area; Western; Eastern and Coastal ranges. The PRCs will coordinate and implement the aspects of the action plan relating to their species of interest. PRCs will be composed of the KWS Senior Assistant Director (SAD) for the area as Chair, the Wildlife Research & Training Institute (WRTI) Senior Research Scientist (SRS) for the area as Secretary, community representatives, NGO and civil society representatives, research institutions and other stakeholders.

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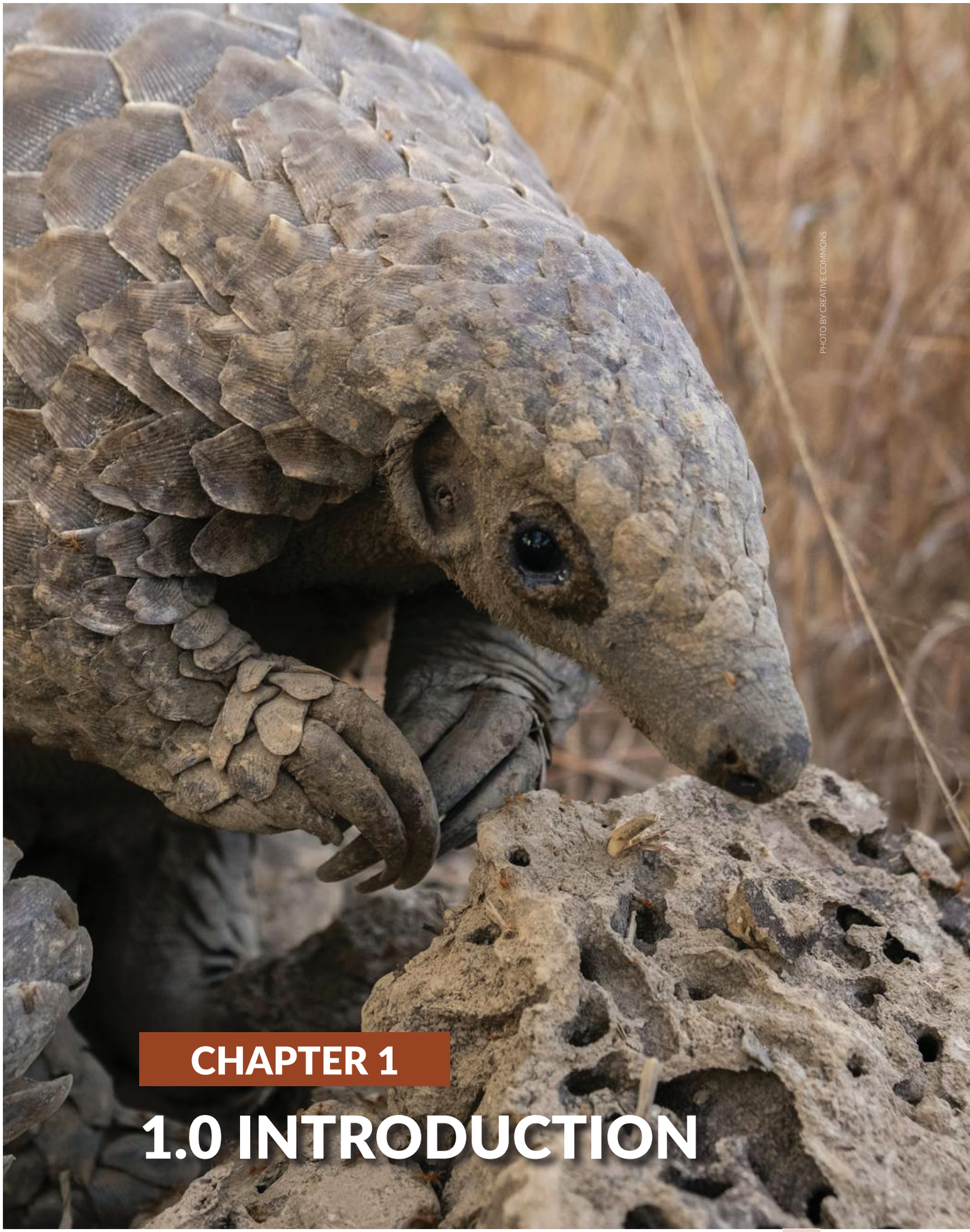
# List of acronyms

| | |
|---|---|
| **AD** | Assistant Director |
| **AE** | Amboseli Ecosystem |
| **AG** | Attorney General |
| **APWG** | African Pangolin Working Group |
| **AWF** | African Wildlife Foundation |
| **CAK** | Conservation Alliance of Kenya |
| **CBD** | Convention on Biological Diversity |
| **CBO** | Community Based Organization |
| **CCA** | Community Conservation Area |
| **CG** | County Government |
| **CITES** | Convention on International Trade in Endangered Species of Wild of Fauna and Flora |
| **CoG** | Council of Governors |
| **COP** | Conference of Parties |
| **DCI** | Directorate of Criminal Investigation |
| **DPP** | Directorate of Public Prosecution |
| **EAGLE** | Eco Activists for Governance and Law Enforcement |
| **EALA** | East African Legislation Assembly |
| **ESIA** | Environmental and Social Impact Assessment |
| **EIA** | Environmental Investigation Agency |
| **GEF-GWP** | Global Environmental Facility-Global Wildlife Program |
| **SWT** | Sheldrick Wildlife Trust |
| **EMCA** | Environmental Management and Coordination Act |
| **EN** | Endangered |
| **FFI** | Fauna & Flora International |
| **FR** | Forest Reserve |

| | |
|---|---|
| **GEF** | Global Environment Facility |
| **GOK** | Government of Kenya |
| **GPS** | Global Positioning System |
| **HWC** | Human-Wildlife Conflict |
| **IUCN** | International Union for Conservation of Nature |
| **IWT** | Illegal Wildlife Trade |
| **JKIA** | Jomo Kenyatta International Airport |
| **KALRO** | Kenya Agricultural and Livestock Research Organization |
| **KAA** | Kenya Airports Authority |
| **KFS** | Kenya Forest Service |
| **KPA** | Kenya Ports Authority |
| **KPS** | Kenya Police Service |
| **KWCA** | Kenya Wildlife Conservancies Association |
| **KWS** | Kenya Wildlife Service |
| **LATF** | Lusaka Agreement Task Force |
| **MCA** | Meru Conservation Area |
| **MEA** | Multilateral Environmental Agreements |
| **MLA** | Mutual Legal Assistance |
| **MoFA** | Ministry of Foreign Affairs |
| **MoTW** | Ministry of Tourism and Wildlife |
| **NCAJ** | National Council on the Administration of Justice |
| **NAP** | National Action Plan |
| **NEMA** | National Environment Management Authority |
| **NGOs** | Non-Governmental Organizations |
| **NK** | Nature Kenya |
| **NMK** | National Museums of Kenya |
| **NP** | National Park |
| **NPS** | National Police Service |
| **NPTC** | National Pangolin Technical Committee |

| | |
|---|---|
| **NR** | National Reserve |
| **NRAPPK** | National Recovery and Action Plan for Pangolins in Kenya |
| **NRT** | Northern Rangeland Trust |
| **ODPP** | Office of Director of Public Prosecution |
| **OECM** | Other Effective Area-based Conservation Measures |
| **PA** | Protected Area |
| **PSG** | Pangolin Specialist Group |
| **PTC** | Pangolin Technical Committee |
| **SANBI** | South African National Biodiversity Institute |
| **SDW** | State Department for Wildlife |
| **SoP** | Standard Operation Procedure |
| **TBA** | Tropical Biology Association |
| **TCA** | Tsavo Conservation Area |
| **TENP** | Tsavo East National Park |
| **TPP** | The Pangolin Project |
| **TSC** | Technical Steering Committee |
| **TWNP** | Tsavo West National Park |
| **UNCCD** | United Nations Convention to Combat Desertification |
| **UNFCCC** | United Nations Framework Convention on Climate Change |
| **VU** | Vulnerable |
| **WCMA** | Wildlife Conservation and Management Act |
| **WCK** | Wildlife Clubs of Kenya |
| **WCS** | Wildlife Conservation Society |
| **WJC** | Wildlife Justice Commission |
| **WRTI** | Wildlife Research and Training Institute |
| **WW** | Wildlife Works |
| **WWF** | World Wildlife Fund |
| **ZSL** | Zoological Society of London |



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# CHAPTER 1

# 1.0 INTRODUCTION

## 1.1 Relevance of the Action Plan

There are only eight pangolin species in the world. Four of these occur in Africa and the other four occur in Asia. Of the four African pangolin species, three are found in Kenya: Temminck's pangolin (*Smutsia temminckii*), giant pangolin (*Smutsia gigantea*), and white-bellied pangolin (*Phataginus tricuspis*), which have been evaluated as Vulnerable, Endangered and Endangered, respectively, against the IUCN's Red List of Threatened Species criteria. Globally, pangolins are among the most threatened wildlife species due to the very high demand in international trade for skins, scales and meat (Nixon et al. 2019, Cota-Larson 2014). Despite all the world's eight pangolin species being protected under Appendix I in the Convention on International Trade in Endangered Species of Fauna and Flora (CITES), which prohibits international trade except in exceptional circumstances, large-scale poaching of pangolins continues globally, with over one million pangolins estimated to have been poached from the wild and illegally trafficked during the last decade (WWF 2022). Indeed, pangolin species have become the most traded and trafficked mammal species in the world today (Challender et al. 2012, 2020; CITES 2018; Zhang et al. 2020).

Kenya, among other pangolin range states in Africa, has been identified as a source and transit country for illegally traded specimens of pangolins, primarily to Asian markets (Cota-Larson 2014), a trend that is on the rise. This places the country in a critical position for influencing pangolin conservation and protection in the region and globally. Other threats to pangolins in Kenya include habitat loss, electrocution by electrified fences, as well as cultural beliefs and practices among local communities that may adversely affect pangolins. Exacerbating the threat from trafficking of live animals is the stress, morbidity, and high frequency of mortality of live pangolins confiscated from poachers and held in captivity for prolonged periods of time, such as when required for live exhibits in court proceedings.

These threats have not been fully addressed due a number of reasons, among them, existing information gaps on the species distribution and population status as well the lack of a national recovery and action plan for pangolins. There is therefore a need to understand the drivers and enabling factors of the threats to pangolins, in particular poaching and trafficking and the impact of these on national populations, considering our limited understanding of population sizes, home ranges, and movements of the three species in Kenya; the extent of loss and contraction of their habitats; the human dimensions e.g. attitudes, practices, and cultural beliefs of local communities towards pangolins, and appropriate pangolin captive care practices.

Conservation stakeholders in the past have identified the lack of a national pangolin conservation action plan as a key barrier to the conservation and protection of pangolins in Kenya. This may have been occasioned by the fact that pangolins are not listed in Schedule Six of WCMA 2013 ("Nationally Listed Critically Endangered, Vulnerable, Nearly Threatened and Protected Species", which is based on the IUCN Red List of more than twelve years ago), and therefore have lacked conservation attention locally.

Under the leadership of the Kenya Wildlife Service (KWS) and support from Fauna & Flora International (FFI) and in collaboration with National Museums of Kenya (NMK),

Wildlife Research and Training Institute (WRTI) and other stakeholders, a strategic move was taken to develop a recovery and action plan, which outlines strategies and actions addressing knowledge gaps on pangolin biology and ecology, management of pangolin habitats, human perceptions of pangolins, as well as control of poaching and illegal trade in pangolins. The strategy is envisioned to minimize the impacts of known threats, improve habitat conditions, enhance coordinated stakeholder efforts and strengthen local stewardship for conservation of the three species.

## 1.2 Action Plan Development Process

A Technical Steering Committee (TSC) consisting of representatives from KWS, NMK, WRTI (as these are the government agencies with direct mandate to deliver pangolin conservation actions) and Fauna & Flora was established by KWS. Their role was to oversee and coordinate stakeholders on the development of this action plan. An initial stakeholder mapping was facilitated by Fauna & Flora with members from the TSC. 'Stakeholders' were defined as those, based in Kenya or elsewhere, who could be affected or could affect the plan or the work detailed in it and those who could have an interest in the plan or the work detailed in it. A second stakeholder mapping session facilitated by Fauna & Flora was conducted with the TSC in which additional stakeholders were identified and classified according to the influence each could exert on the development and implementation of the plan, and the interest each would have on actions pertaining to pangolins and pangolin conservation. Efforts to keep the stakeholder mapping neutral were made by having facilitation from Fauna & Flora's Conservation Science & Design team who are trained facilitators and not otherwise involved in pangolin conservation or this action planning process. The limitations of listing only stakeholders who were known by members of the TSC was recognized; to ensure global pangolin experts were also listed, Fauna & Flora staff based in the UK who are members of the IUCN-PSG also joined this exercise. To mitigate for biases of the TSC regarding Kenya-based stakeholders, participants in the inception and regional workshops (described below) were also asked to list other organizations, agencies or individuals who are key in implementing certain aspects of the action plan. Stakeholders listed during the workshops were engaged at later stages such as the validation workshop where all stakeholders received a copy of the draft action plan and were invited to provide feedback during and after the workshop.

A technical consultant was recruited and hired by Fauna & Flora, who provided the funding for this consultancy, to develop the action plan document through a consultative process. Terms of reference for the position were developed between KWS and Fauna & Flora and the role was advertised in environmental and conservation related job platforms in Kenya and on Fauna & Flora's website. Applications were reviewed by KWS and Fauna & Flora, suitable candidates interviewed by Fauna & Flora, KWS and WRTI staff, and a joint decision was made to hire the consultant.

To gather background information on the status of pangolin species in Kenya and identify research and knowledge gaps, desktop reviews of available secondary data as well as published and unpublished sources at key institutional libraries and several online platforms were carried out by National Museums of Kenya (Musila et al. 2022). Additionally, NMK gathered data from museum specimens in Kenya and court exhibit memos and carried

out key informant interviews (KII) with people who had encountered pangolins in the recent past (<5 years). Two groups were targeted for the KII i) wildlife conservation practitioners, who include people working in the field of wildlife conservation whether in the government, local and international NGOs, Community Based Organizations (CBOs), scientists, safari guides or other naturalists and ii) Law enforcement officers especially those working in wildlife crime control departments: such as Kenya Wildlife Service, Directorate of Criminal Investigations (DCI), Kenya Police Service (KPS) and Kenya Forest Service (KFS). Respondents were interviewed through questionnaires during the stakeholder workshops or provided with the questionnaire to complete and return via email, while other interviews were conducted via phone calls with people in the field. This information was used to identify confirmed recent sightings of any of the three Kenyan pangolin species which were then digitized to generate updated distribution maps. This status review conducted by NMK has been consolidated into a report, please see Musila et al. 2023.

Stakeholder engagement started with a national hybrid inception workshop with a countrywide representation of stakeholders to launch the process while creating awareness on the plight of pangolin species, as well as formulating vision, goal and strategic objectives. Stakeholders invited were those who were identified during both stakeholder mapping sessions. Similar hybrid consultative stakeholder workshops were conducted in five different regions in Kenya covering Central Rift, Tsavo, Coast, Eastern and Western Conservation Areas (Annex 2 and 3). KWS was the lead facilitator in all workshops, supported by WRTI and NMK who made presentations and led plenary discussions. Besides awareness creation, these workshops served to collate information on current and historical pangolin distribution, threats and conservation opportunities as well as defining stakeholders' roles and input in the action plan implementation process. Notes were taken by the consultant and Fauna & Flora staff. All these workshops and official communications with the stakeholders were conducted in English, the official working language in Kenya. Additional information regarding pangolin ecology and illegal trade was sought from biologists (e.g., TPP, NMK, WRTI, NRT), managers (KWS, KFS, Conservancies), wildlife crime control agencies (KWS, KPS, DCI) as well as other expert groups (e.g., FFI, TRAFFIC, WWF, IUCN-PSG) to compile the background required to develop the action plan.

During the national inception workshop stakeholders were guided in drafting vision, overall goal and strategic objectives statements. These statements were further refined during the regional workshops where stakeholders, working in groups, also contributed to other sections of this action plan such as threats to pangolins and conservation actions under each strategic objective. These draft statements (and other constituent parts of the action plan) were later subjected to a review process by the TSC during a hybrid workshop in Machakos where vision, goal and strategic objectives (SOs) draft statements were agreed upon. The proposed actions to achieve the different SOs were captured in a logical framework matrix during this meeting.

Based on the information gathered from the national, regional and TSC workshops as well as situation analysis conducted by NMK on pangolins' status in Africa and in Kenya (See Musila et al 2023), the consultant developed a zero draft pangolin recovery and action plan for Kenya. This draft was circulated among the TSC for a first round of feedback

and edits. A first draft was shared with stakeholder organizations who had participated in the workshops for review. A second national hybrid stakeholder workshop, which included additional stakeholders that had been identified during the process, was held to validate the draft action plan and give feedback. Participants in this workshop were divided into groups based on their expertise (e.g., law enforcement, protection of wildlife at site, research, etc.) to brainstorm outcomes, outputs and actions under each strategic objective. This workshop was also conducted in English.

Incorporating input and ideas gathered from this workshop, a second draft of the plan was prepared by the technical consultant. This draft was circulated amongst the TSC, and after receiving and incorporating edits and feedback it was shared with the IUCN-PSG who provided a comprehensive review of the plan prepared by four senior IUCN-PSG leaders and one of the Co-Chairs. Together, this group had extensive experience with research and conservation action for all the pangolin species found in Kenya, the themes addressed in the plan, knowledge of Kenya and East Africa, and conservation planning. Once the IUCN-PSG's feedback was addressed by the consultant and the TSC, the action plan received the endorsement of the IUCN-PSG and was presented to KWS and the Ministry of Tourism and Wildlife for approval and subsequent launch. The process of this action plan development is presented in Figure 1.

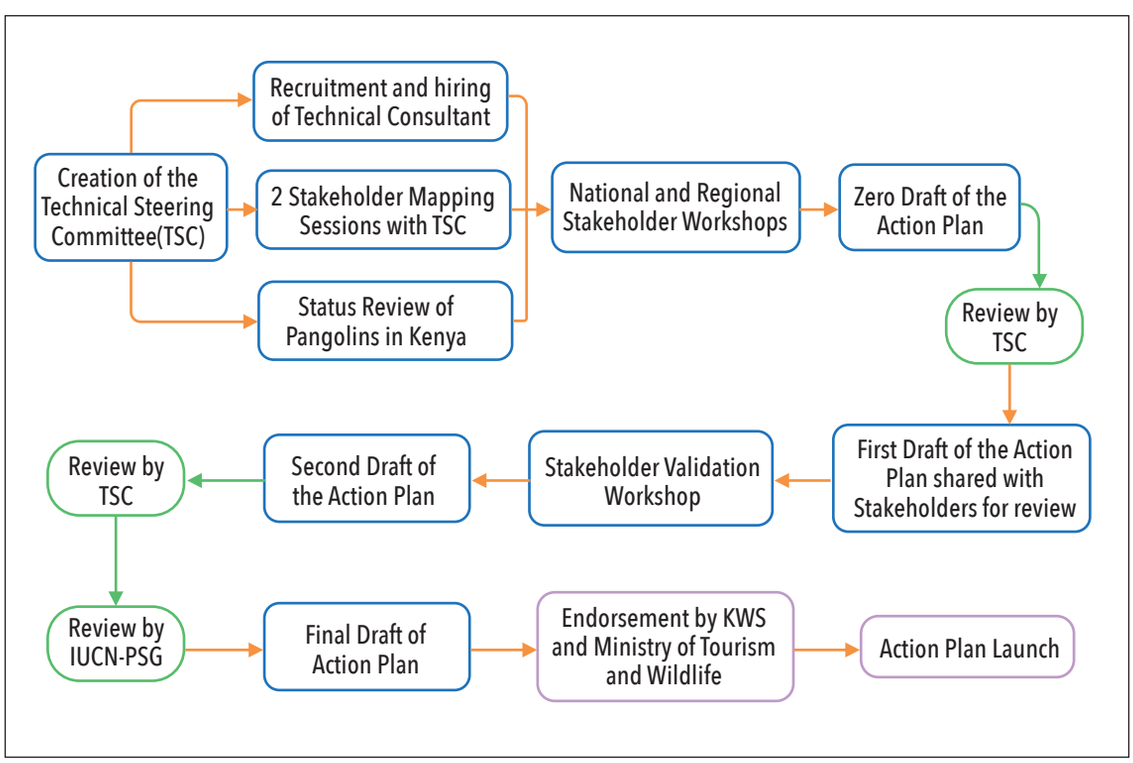



**Figure 1:** Kenya's pangolin recovery and action plan development process

## 1.3 Scope of the Action Plan

This action plan provides guidance for implementing the conservation strategies generated through a participatory process to ensure the survival of the three Kenyan pangolin species. The plan provides useful background information on pangolins in general and the Kenyan species in particular, besides providing vision, goal, strategic objectives and time-bound actions. The action plan consists of eight chapters. Chapter one introduces the purpose of the action plan and the guiding policy framework while chapter two outlines the taxonomy, ecology and conservation status of pangolins and their distribution globally and in Africa. Chapter three focuses on distribution and population status of the three pangolin species found in Kenya. Chapter four summarizes the threats, challenges and opportunities for pangolin conservation in Kenya. Chapter five focuses on the 5-year National Recovery and Action Plan for Pangolins in Kenya 2024-2028. This chapter spells out the plan's vision, overall goal, strategic objectives (including rationale, expected outputs within broader outcomes) and specific conservation actions. Chapter six covers the implementation plan, providing coordination structure, financial plan, monitoring and evaluation plan and stakeholder analysis. Chapters seven and eight are references and annexes respectively.

A separate report which provides detailed species account and situational analysis on pangolins in Kenya is available (Musila et al. 2023).

## 1.4 Legal and Policy Frameworks

For effective conservation of pangolin species and their habitats that addresses poaching and trade in pangolin products, national and international legislation are required. This action plan is developed in line with and guided by key Kenyan government policies as well as regional and international conservation regulatory statutes and Multilateral Environmental Agreements (MEAs). The key guiding policies include: the Wildlife Conservation and Management Act, 2013, the Forest Conservation and Management Act, 2016, and the Environmental Management and Coordination Act CAP 387 of 1999, among others. Table 1 below provides these and additional policies relevant to this action plan.

**Table 1:** Relevant National and International Policies and strategies guiding this action plan

| National Policy | Provisions/Relevance |
|---|---|
| **Wildlife Conservation and Management Act, 2013 (Amendments, 2019)** http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/WildlifeConservationandManagement%20Act2013.pdf | The WCMA, 2013 mandates KWS to conserve wildlife and their habitats wherever they occur in collaboration with stakeholders. Section 49 of the Acts recommends that KWS may develop and Implement recovery plans for the conservation and management of all species listed in the sixth schedule (i.e., rare and threatened species). However, pangolins are not listed under Schedule Six of the Act despite their threatened status.<br><br>Section 107 of this Act provides for delegated powers of prosecution to be afforded to officers of the Kenya Wildlife Service. Part XIII of the same Act provides for powers of investigation, arrest and enforcement to authorized officers of the Kenya Wildlife Service. |
| **The Forest Conservation and Management Act, 2016 No. 34 of 2016** http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/2016/No._34_of_2016.pdf | Section 42. (1) All indigenous forests and woodlands shall be managed on a sustainable basis for purposes of – (a) conservation of water, soil and biodiversity (h) habitat for wildlife in terrestrial forests and fisheries in mangrove forests.<br><br>Forests, and especially indigenous forests, constitute an important habitat for giant and white-bellied pangolins |
| **Environmental Management and Coordination Act CAP 387 of 1999 [Rev. 2012]** http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/EnvironmentalManagementandCoordinationAct_No8of1999.pdf | Part V Section 50 on conservation of biological diversity states that:<br>The Authority [NEMA] shall, in consultation with the relevant lead agencies, prescribe measures necessary to ensure the conservation of biological diversity in Kenya<br><br>Part V Section 51 on Conservation of biological resources in situ states that:<br>The Authority shall, in consultation with the relevant lead agencies, prescribe measures adequate to ensure the conservation of biological resources in situ.<br><br>EMCA requires undertaking an Environmental Impact Assessment on projects likely to pose significant negative impacts on the environment, including habitats known to host key wildlife species. |
| **National Wildlife Strategy 2018-2030** https://www.tourism.go.ke/wp-content/uploads/2018/06/WILDLIFE-STRATEGY2030-Final-V1-Online.pdf | Has four pillars which will be key in implementation of the National Recovery and Action Plan for Pangolins in Kenya, namely:<br>i) Resilient Ecosystems<br>ii) Engagement by all Kenyans,<br>iii) Evidence Based Decision Making,<br>iv) Sustainability and Governance |

| National Policy | Provisions/Relevance |
|---|---|
| **Sessional paper No.01 of 2020 on Wildlife Policy** https://www.tourism.go.ke/wp-content/uploads/2021/07/WILDLIFE-POLICY-2020.pdf | • The policy is relevant to pangolin conservation as it provides for a coordinated framework for wildlife management in Kenya, taking into account other sectoral policies and the roles of various agencies.<br>• Its goal is to ensure sustainable management of Kenya's wildlife resources through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes in order to provide for the social, economic, ecological, cultural and spiritual needs of present and future generations |
| **Constitution of Kenya 2010** http://www.parliament.go.ke/sites/default/files/2023-03/The_Constitution_of_Kenya_2010.pdf | The Constitution is the supreme law of the country.<br>Chapter 1: Article 2(6) states:<br>Any treaty or convention ratified by Kenya shall form part of the law of Kenya under this Constitution<br>Chapter 5 Section 2<br>• Article 69 (1) The State shall (d) encourage public participation in the management, protection and conservation of the environment; (e) protect genetic resources and biological diversity.<br>• Article 69 (2) Every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources. |
| **Kenya Vision 2030** https://www.planning.go.ke/wp-content/uploads/2020/11/Vision_2030_-_2007.pdf | The economic vision and strategy identify tourism as a key sector in achieving goals of the vision by diversification of the tourism product. |
| **The County Governments Act, 2012** https://constitutionnet.org/sites/default/files/the_county_government_act_2012.pdf | • Section 110 (1) outlines requirements of development of a ten-year county GIS based database system spatial plan for each county to facilitate the development of a well-balanced system of settlements and ensure productive use of scarce land, water and other resources for economic, social, ecological and other functions across a county;<br>• Section 102. The principles of planning and development facilitation in a county shall (d) protect and develop natural resources in a manner that aligns national and county governments policies; |

| National Policy | Provisions/Relevance |
|---|---|
| **Community Land Act, 2016**<br>http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/CommunityLandAct_27of2016.pdf | The three Kenyan pangolin species also occur in community land (trust land or community ranches) outside protected areas. This Act has several provisions which can be used to manage such areas to protect pangolin habitat. For example, Part IV-Nature of community land title, Section (9) on Land use and development planning of community land, sub-section (2) states that before submitting a plan to the county government under subsection (1) a registered community shall:<br><br>(a) Consider any conservation, environmental or heritage issues relevant to the development, management or use of the land;<br><br>(c) Consider any environmental impact plan pursuant to existing laws on environment.<br><br>In Part VII-Environment and natural resources management, three sections (35, 36 and 39) are explicit that impact assessments should be carried out for any development proposed on community land. |
| **Climate Change Act 2016**<br>http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/ClimateChangeActNo11of2016.pdf | Drylands in Kenya constitute the largest distribution range of *S. temminckii*. The effects of climate change, such as prolonged droughts and famine, lead to human-induced habitat degradation in rangelands through livestock overgrazing, charcoal burning, etc. The Climate Change Act, 2016, was enacted to address some of these challenges. Generally, the Act strives to protect, restore, and promote sustainable use of terrestrial ecosystems (forests, bushlands), combat desertification, and reduce and reverse land degradation as well as loss of biodiversity. |
| **International Policy Framework and MEAs** | **Provisions/Relevance** |
| **Convention on Biological Diversity (CBD 1992)**<br>https://www.cbd.int/ | This Convention seeks to enhance conservation, sustainable use and equitable sharing of biodiversity (Article 1); identification of threats and monitoring the status of biodiversity and habitats (Article 7); developing national strategies, plans and programs for conservation (Article 6a), in-situ conservation through PAs (Article 8a); research and training for conservation and sustainable use of biodiversity (Article 12); public participation, education and awareness (Article 13); and exchange of technology, scientific, socio-economic and indigenous research results (Article 17), among others. |

| International Policy Framework and MEAs | Provisions/Relevance |
|---|---|
| **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)** https://cites.org/eng/disc/what.php | Pangolins are listed in CITES Appendix I for which commercial trade is prohibited (Article 2) and regulations for trade in pangolin specimens is a requirement (Article 3).<br>CITES Resolution Conf. 17.10 (Rev. CoP19) on conservation of and trade in pangolins urges the implementation of comprehensive national legislation in range and consumer States; strict enforcement control; improving national inter-agency, regional and international cooperation in investigations and enforcement; using best practices for safe handling and release into the wild of live confiscated pangolins; strict control over stockpiles; reporting information about trade in pangolins; raising awareness about the conservation status of pangolins; monitoring populations; research in the uses of pangolin specimens; and developing non-consumptive livelihood programs<br><br>CITES Resolution Conf. 17.8. provides guidance on disposal of illegally traded and confiscated specimens of CITES-listed species |
| **United Nations Framework Convention on Climate Change (UNFCCC) 1992** https://unfccc.int/process-and-meetings/what-is-the-united-nations-framework-convention-on-climate-change | Kenya ratified the Convention on 30th August 1994, and it entered into force on 30th August 1994. As a party to UNFCCC, Kenya assumes obligations to plan, take action and report on measures taken to mitigate global warming. |
| **United Nations Convention to Combat Desertification (UNCCD) 1994** https://www.unccd.int/ | The convention was adopted on 17th June 1994 and on 24th June 1997 Kenya ratified the treaty. To implement the treaty the country has enacted the Climate Change Act 2016 and subsequently prepared a five-year National Climate Change Action Plan 2018-2022 (GOK 2020) |
| **Resolution of the United Nations Commission on Crime Prevention and Criminal Justice (CCPCJ) 31/1 on Strengthening the International Legal Framework for International Cooperation to Prevent and Combat Illicit Trafficking in Wildlife** https://www.unodc.org/unodc/en/commissions/CCPCJ/index.html | The resolution invites States to provide their views on "possible responses, including the potential of an additional protocol to the United Nations Convention against Transnational Organized Crime (UNTOC), to address any gaps that may exist in the current international legal framework to prevent and combat illicit trafficking in wildlife". |

| International Policy Framework and MEAs | Provisions/Relevance |
|---|---|
| **Lusaka Agreement (LA) on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora 1996:** http://lusakaagreement.org/wp-content/uploads/2013/12/LA-Final-Act-upd.pdf | The Secretariat established under the Agreement is hosted in Kenya at KWS in Nairobi. The staff of the Secretariat comprise law enforcement officers drawn from wildlife authorities of the signatory states. Their main work is to control transboundary illegal wildlife trade in member states, especially involving ivory and rhino horn. |
| **African Strategy on Combating Illegal Exploitation and Illegal Trade in Wild Fauna and Flora in Africa, 2015** https://au.int/sites/default/files/documents/33796-doc-african_strategy_strategy_africaine_au.pdf | The African Strategy guides a coordinated response by countries in Africa to combat the illegal exploitation and illegal trade in wild fauna and flora. The strategy includes seven core components: increased political commitment to combat illegal wildlife trade, improved governance and regional cooperation, enhanced engagement with consumer countries to reduce demand, increased capacity in detection of illegal wildlife trade, promoted participatory approach with community livelihoods, reduced economic and security impact of wildlife crime, and advocacy and public awareness. |
| **African Convention on the Conservation of Nature and Natural Resources (The Algiers Convention):** https://au.int/sites/default/files/treaties/41550-treaty-Charter_ConservationNature_NaturalResources.pdf | The Convention was adopted on 15th September 1968 and came into force on 16th June 1969. Kenya signed on 17th December 2003. Contracting parties commit to increase vegetation cover, promote traditional rights of local communities and traditional knowledge, and participate in meetings for the conservation and rehabilitation of shared natural resources for future generations. |
| **The East African Customs and Management Act, 2004 (Rev. 2009);** http://kenyalaw.org/kl/fileadmin/pdfdownloads/EALA_Legislation/East_African_Community_Customs_Management_Act_2004.pdf | The treaty makes provisions for the management and administration of export and import of goods among East African countries.<br><br>The 2nd Schedule, Part B-of Restricted exports goods across the borders of partner countries includes, among other things:<br><br>(22) Endangered Species of Wild Flora and Fauna and their products in accordance with CITES March 1973 and amendments thereof.<br><br>The 3rd Schedule, of Restricted exports goods, prohibits exportation among partner states of: 1(c) timber from any wood grown in the Partner States, and (e) wood charcoal.<br><br>These restrictions would help protect Kenyan pangolins and their habitats. |

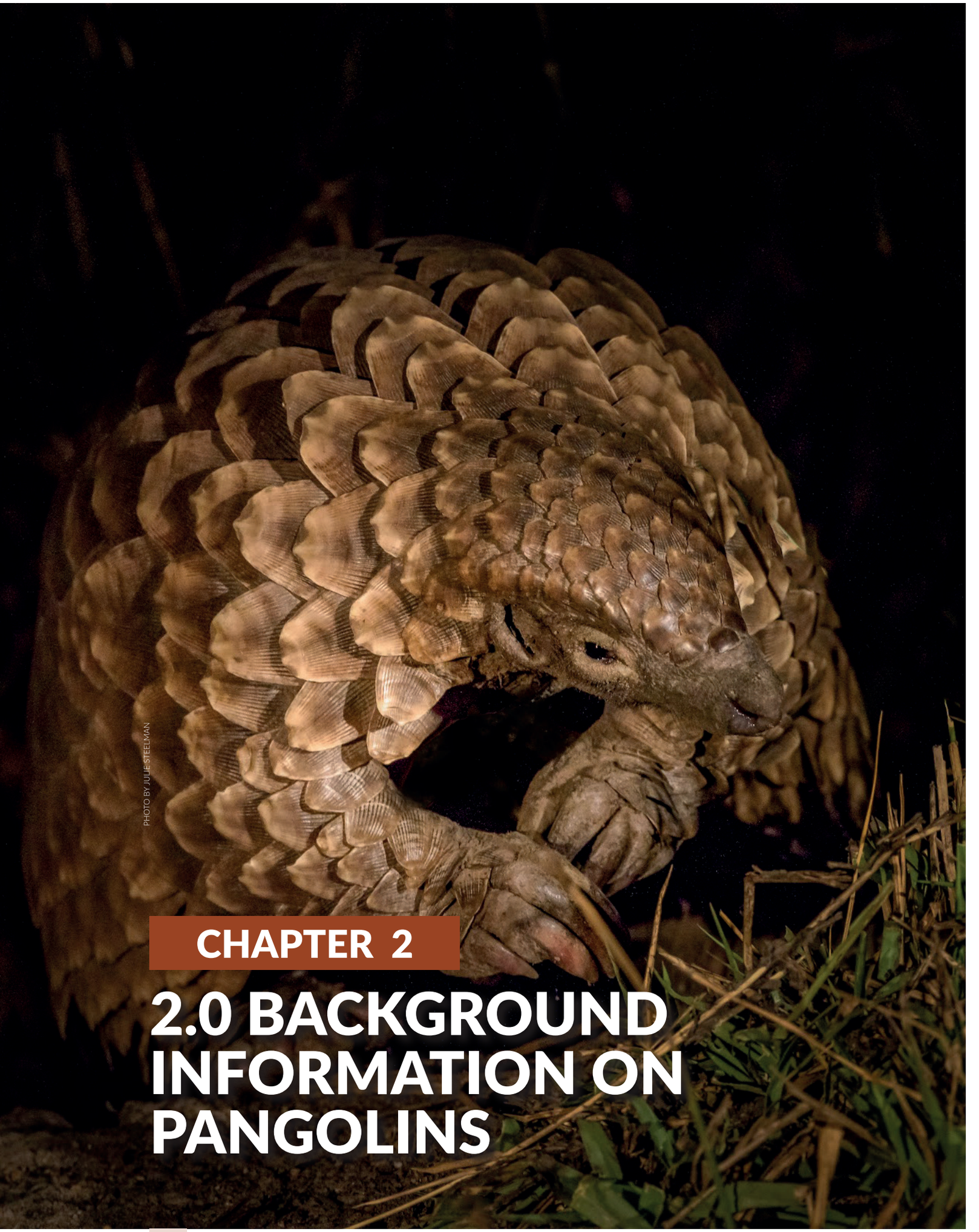


PHOTO BY JULIE STEELMAN

CHAPTER 2

# 2.0 BACKGROUND INFORMATION ON PANGOLINS

## 2.1 Taxonomy and Global Distribution

Pangolins are highly specialized, scaly ant- and termite-eating mammals. They are uniquely characterized by protective horny scales covering the entire outer body and long muscular tail. There are eight species of pangolins in the world, all grouped in the order Pholidota (meaning horny scale in Greek) and consist of a single family, Manidae, that represents three genera: *Manis*, *Smutsia* and *Phataginus* (Gaudin et al. 2020; Gaudin et al. 2009; Kingdon and Hoffmann 2013). Of the eight pangolin species, four occur in Asia and four in Africa (Gaubert and Antunes 2005). Two of the three genera, *Smutsia* ground pangolins and *Phataginus* tree pangolins, represent the four species found in Africa, while the four Asian species are under the genus *Manis* (Gaubert et al. 2020).

The four Asian pangolins include: The Indian pangolin (*Manis crassicaudata*), the Philippine pangolin (*M. culionensis*), the Chinese or Formosan pangolin (*M. pentadactyla*), and the Malayan or Sunda pangolin (*M. javanica*). The other four pangolin species are confined to Africa south of the Sahara and include: The Temminck's pangolin (*Smutsia temminckii*), the giant pangolin (*Smutsia gigantea*), the white-bellied pangolin (Phataginus tricuspis) and the black-bellied pangolin (*Phataginus tetradactyla*) (IUCN 2022). Of the four African pangolin species, three occur in Kenya. Figure 2 shows the global distribution for each of the eight extant species of pangolins.

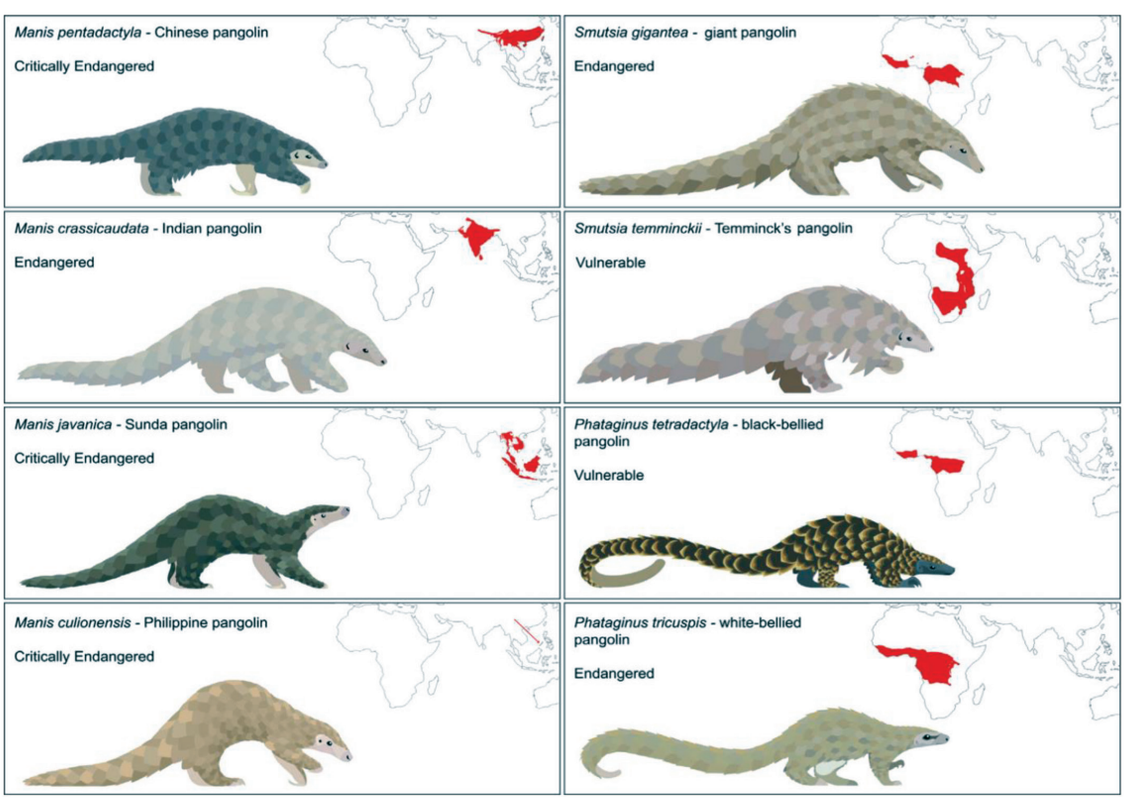



**Figure 2:** The distribution of the eight extant species of pangolins and their IUCN Red List status *(IUCN 2022; Gaubert et al. 2020).*

## 2.2 Description, Biology, Distribution and Status of African Pangolins

### 2.2.1 Temminck's Pangolin (*Smutsia temminckii*) (Smuts, 1832)

**Morphological description:** This is a stout medium-sized pangolin that weighs about 9-10 kg but this appears to vary across the species range (weight from Temminck's pangolin individuals weighed opportunistically in Kenya, during rescues or accidental encounters, ranged from 12.4 kg to 24 kg; in Sudan a male weighing 21 kg was recorded, while some Kalahari individuals are 25-30% smaller than those of eastern South Africa) and measures up to 140 cm long (Pietersen et al. 2020). No sexual dimorphism in the species has been recorded, even though males tend to be larger and the species' body mass has a linear correlation with total length (Pietersen et al. 2020; Kingdon and Hoffmann 2013).

The body and forehead (up to two thirds of the nose tip) of Temminck's pangolin are covered in keratinized overlapping scales, except the throat, belly and insides of the limbs which are covered with soft white skin with sparse short hairs (Pietersen et al. 2020; Kingdon and Hoffmann 2013). The scales have a pointed tip (may be rounded in older individuals) and are generally yellowish-brown, while in some individuals those on the head, shoulders and forelegs are tinged reddish-brown or ivory on the tips (Pietersen et al. 2020; Kingdon and Hoffmann 2013). See Plate 1 and Table 3 below.

*Photo credit: The Pangolin Project*

**Plate 1:** Photo of Temminck's Pangolin (*Smutsia temminckii*)

**Distribution:** This is the most widespread African species, especially in southern and East Africa. Throughout its range the distribution is patchy and is highly influenced by presence of suitable prey and habitat, appearing intolerant to human-induced habitat change (Pietersen et al. 2020). It has been recorded from southeastern Chad and northeastern Central African Republic, southern Sudan and South Sudan, through to the western border regions of Ethiopia; with unconfirmed presence in Somalia (Pietersen et al. 2020; Kingdon and Hoffman 2013). It is found throughout Tanzania, Uganda, Rwanda, Burundi and Kenya (except northeastern and some eastern parts of the country); through Mozambique, Zambia (except in the northwestern parts of that country), Malawi, Zimbabwe, Angola, Botswana to Northern Cape and North West Province of South Africa and NE KwaZulu–Natal (Pietersen et al. 2020; Kingdon and Hoffmann 2013). Its western distribution limit is Namibia, excluding the arid coastal regions (Pietersen et al. 2020, Figure 3).

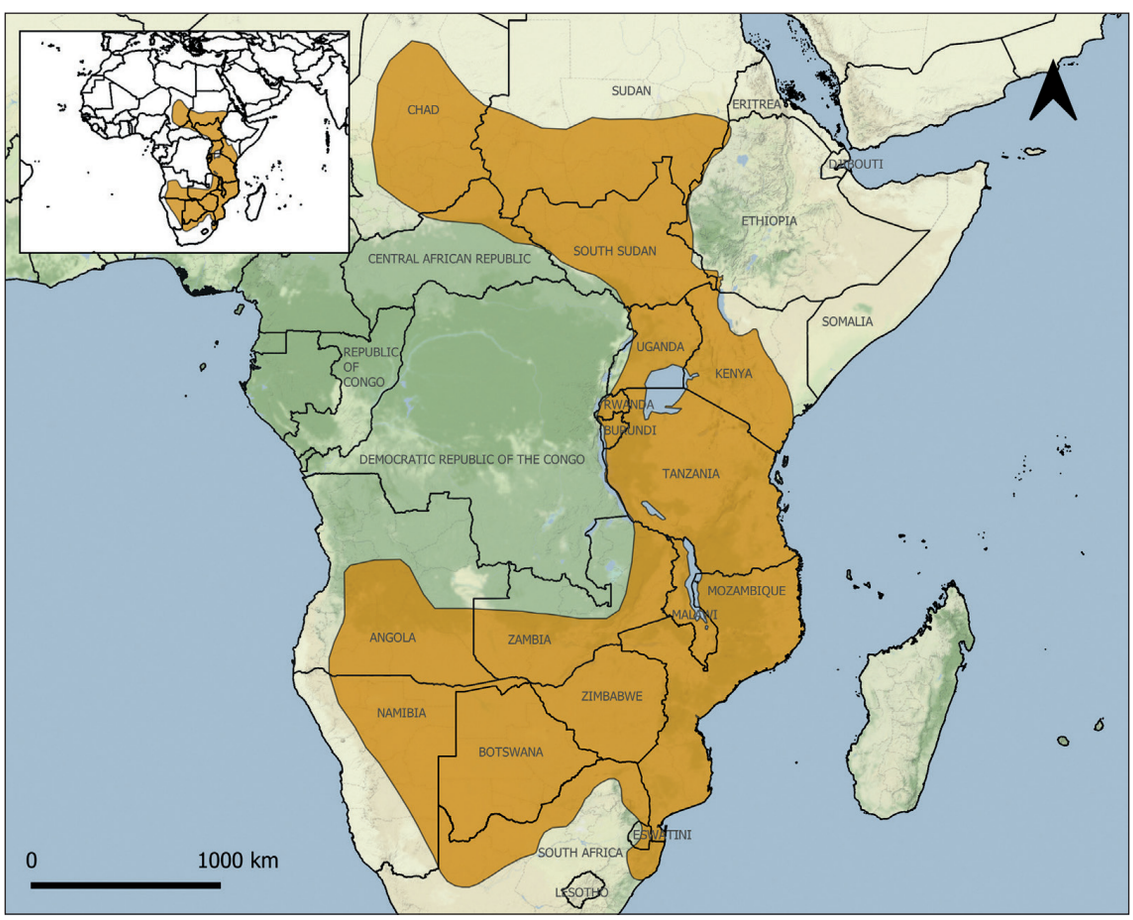



**Figure 3:** Map of *S. temminckii* distribution in Africa. *(Pietersen et al. 2019).*

**Habitat:** Temminck's pangolin occupies mainly savanna woodland with moderate to dense scrub (e.g. *Brachystegia–Julbernardia* and *Colphospermum mopane* woodlands); avoiding closed forests, crop agricultural farms, deserts and altitudes above 1700 m above sea level (Pietersen et al. 2020; Kingdon and Hoffmann 2013). The species prefers habitats with a sufficient and consistent population of its ant and termite prey species, and secure shelter and denning sites (Kingdon and Hoffmann 2013).

**Behavioral ecology:** Being largely nocturnal (though some crepuscular and diurnal activities have been recorded) and preferring thick vegetation, Temminck's pangolin behavioral ecology has not been well documented in most of its range states (Pietersen et al. 2020). Detailed studies are only available from South Africa and Zimbabwe, indicating regional variation in home range sizes, activity schedules between adults and sub-adults, feeding behavior and diet (Pietersen et al. 2020; Kingdon and Hoffmann 2013). While sometimes the Temminck's pangolin is referred to as monogamous, the high overlap of male home ranges with female (up to five) home ranges suggests a polygynous mating system and the large male home ranges may be as a result of young adults' dispersal (Pietersen et al. 2020).

Males are not actively territorial but aggressively repel intruders. They locate receptive females using urine scent-marked routes. Both males and females urine scent-mark their routes. Mating occurs throughout the year. Females give birth to one young measuring 15 cm long and weighing 340g after a gestation period of about 140 days (Kingdon and Hoffmann 2013). The young grow rapidly and are weaned after five months, probably shortly before the birth of the next sibling as females have been found pregnant while still nursing. The young may become independent as early as at three months, but remain in their mother's home range up to 12 months; they hone their foraging skills independent of their mother's guidance. Temminck's pangolins become sexually mature at two years. Females may start reproducing at 3-4 years while males start mating after establishing their own territories at 6-7 years. The longevity of this species with a slow reproductive rate is estimated at 20-30 years (Pietersen et al., 2020).

Temminck's pangolin's diet consists entirely of ants and termites and is highly prey selective, preferring prey greater than 5mm in length (Kingdon and Hoffmann 2013). Prey availability is thought to influence its distribution patterns in an area (Pietersen et al. 2020; Kingdon and Hoffmann 2013). With poor eyesight, they mostly rely on their sense of smell to locate and select their prey, as well as retracing their routes that they scent-mark as they move along. Studies in South Africa and Zimbabwe showed that this species selectively feeds on 30 ant and 10 termite species, out of 50 potential prey species, with an ant species *Anoplolepis custodiens* being the most important prey (Pietersen et al. 2020; Swart et al. 1999). In Sudan, *Crematogaster, Odontotermes, Microcerotermes, Microtermes, Amitermes* and *Ancistotermes* were preferred prey, as 30 other termite and ant species present were avoided (Kingdon and Hoffmann 2013). This is a clear indication that not all ant and termite species are selected as prey by this species.

**Conservation status and threats:** Currently there is no published data on the population status of Temminck's pangolin from most of its range states. Estimates in 2016 put the South African population at 16,000 to 24,000 individuals, but they are on the decline due to accidental electrocution, illegal trade and habitat loss (Pietersen et al. 2020; Challender

et al. 2020; Kingdon and Hoffmann 2013). Temminck's pangolin is listed as **Vulnerable** on the IUCN Red List of Threatened Species, and was included in CITES Appendix I in 2016 prohibiting its exploitation in most of its range states (IUCN 2022, Pietersen et al. 2020, Challender et al. 2020).

Threats to the survival of Temminck's pangolins are all related to human activities and exploitation. For example, an estimated 377 - 1028 individuals are electrocuted annually in South Africa. Additionally, extensive use in traditional medicine and cultural rituals, illegal commercial bushmeat, international trafficking, habitat loss due to land transformation/ encroachment, accidental non-target trapping, drowning in water canals/mining wells and road traffic collisions, threaten the survival of this species (Pietersen et al. 2020; Challender et al. 2020; Kingdon and Hoffmann 2013). In the last decade there has been an increase in illegal international trade of live animals, meat and scales of pangolins, with at least 114 individuals identified as Temminck's pangolins (Pietersen et al, 2020). The number could be higher given that there are chances some scales could have been misidentified.

### 2.2.2 Giant Pangolin (*Smutsia gigantea*) (Illiger, 1815)

Morphological description: The giant pangolin is generally considered the largest of all living pangolin species, weighing up to 45 kg with a total body length between 140 and 180 cm (Hoffmann et al. 2020; Kingdon and Hoffmann 2013). Like other pangolins, the body is covered in keratinized scales (over 17 transversal rows dorsally), and the largest are along the middle of the back, flanks, shoulders and thighs (Hoffmann et al. 2020). It has a distinct elongated muzzle and powerful, well-clawed forelegs and its pale, pinkish-gray head is naked except for the forehead and upper muzzle that are covered in scales (Hoffmann et al. 2020; Kingdon and Hoffmann 2013). Its total number of scales range from 446 to 664 and its light pink to pale gray belly and throat are scale-less (Hoffmann et al. 2020). Like other pangolins, the skull is composed of exceptionally dense, thickened bone without the zygomatic arch, jaws lack any teeth, the tongue is long (70 cm fully extended) and its prey is directed to the gizzard-like structure where they are crushed with the help of specialized muscles and stones (Hoffmann et al. 2020, Gaudin et al. 2020, Kingdon and Hoffmann 2013). Both fore and hind feet have five digits with the forefeet claws being more developed, outer two digits are vestigial and the middle claw is the longest and most robust (Hoffmann et al. 2020). See Plate 2 and Table 3.

*Photo credit: The Pangolin Project*

**Plate 2:** Photo of Giant Pangolin (*Smutsia gigantea*)

**Distribution:** The species' distribution is wide in equatorial Africa; it has been recorded in Senegal, Guinea-Bissau, Guinea, Sierra Leone, Liberia, CÔte d'Ivoire and Ghana, with discontinuous distribution between southeastern Ghana and eastern Nigeria (Hoffmann et al. 2020, Figure 4) and also occurs in part of Benin and Burkina Faso. It is present along Cameroon, mainland Equatorial Guinea, Gabon, Central African Republic, the Republic of the Congo, DRC, South Sudan, Uganda to western Kenya (Hoffmann et al. 2020; Kingdon and Hoffmann 2013). It has been confirmed to be on the edge of Lake Tanganyika in Tanzania near the border with Uganda and recently caught on a camera trap in Rwanda but there are no records from Burundi (Hoffmann et al. 2020). Recent records indicate its northern limits include South Sudan and the southern limits include Congo's Kasai and Sankuru Rivers and probably forests of Cabinda in Angola (Hoffmann et al. 2020).

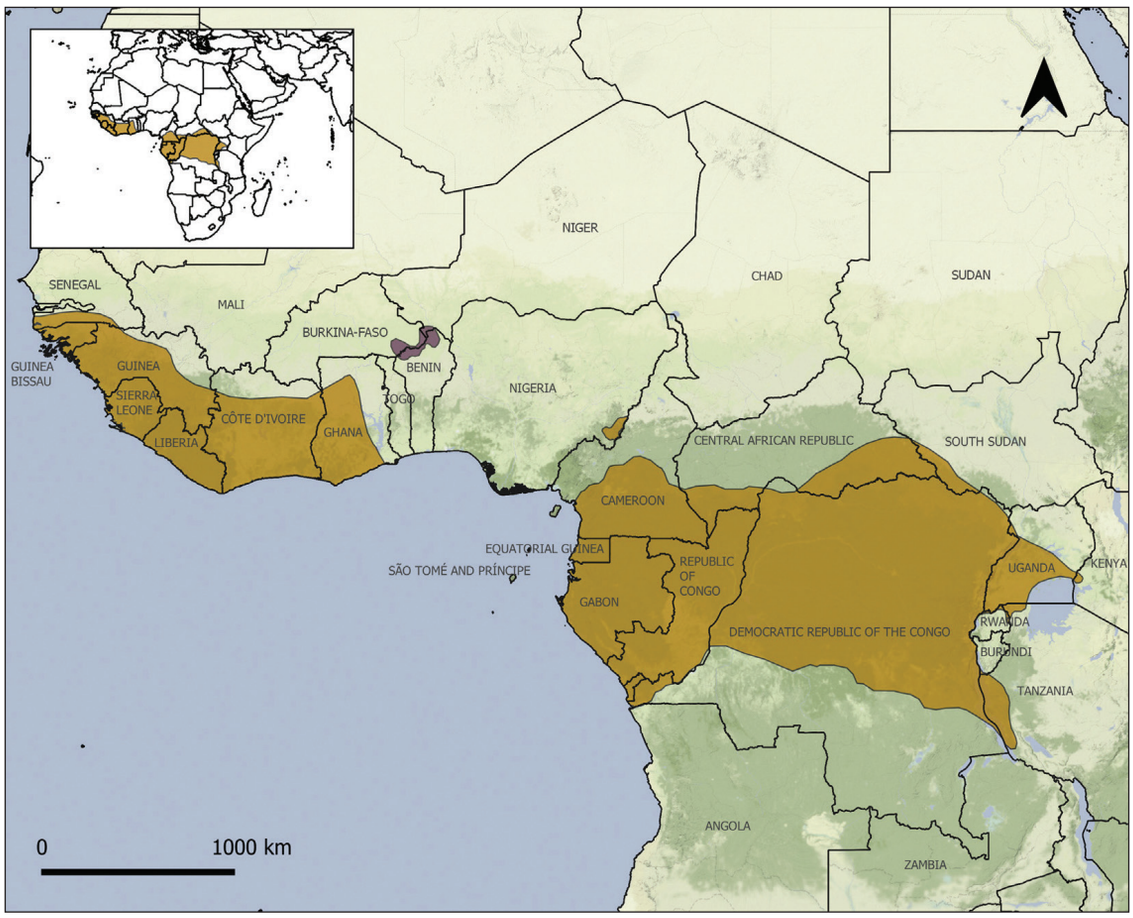



**Figure 4:** Map of *S. gigantea* distribution in Africa
*(Nixon et al. 2019, see also USAID/WA BiCC 2020)*

**Habitat:** Giant pangolins primarily prefer high rainfall forest-savanna mosaics, margins of papyrus and other swampy areas and are highly water-dependent from lowland coastal to highland forest (Hoffmann et al., 2020; Kingdon and Hoffmann 2013). They commonly rest under plant debris, in thickets, under fallen tree roots, in partially opened termitaries or holes of aardvarks (*Orycteropus afer*), but can also dig long, deep burrows with entrances usually plugged from within (Kingdon and Hoffmann 2013).

**Behavioral ecology:** Little is known about *S. gigantea* behavior. It is mainly nocturnal and inhabits dense vegetation. Much of its known behavior is based on studies conducted more than 50 years ago (Hoffmann et al. 2020). While they are known to excavate their own burrows in termite mounds to rest in, giant pangolins take shelter in caves, old aardvark (*Orycteropus afer*) burrows and under fallen trees; sometimes co-habiting with other smaller mammal species like mongoose in the same burrows (Hoffmann et al., 2020; Kingdon and Hoffmann 2013). Their home range size and travel distances are influenced by prey and availability of suitable shelter (Hoffmann et al. 2020). Even though feeding on water beetles has been reported, its major diet consists of termites of various species: *Macrotermes, Pseudocanthotermes, Odontotermes, Cubitermes, Apicotermes, Protermes* and ants such as *Palthothyreus, Camponotus manidis* and *C. fora-minosus, Crematogaster impressa*, *Dorylus sp., Tetramorium aculeata, T. opacum, Myrmycaria eumenoides*, *Pheidole*

*punctulata, Plagiolepis tenella, Polyrhachis concava* and *Oecophylla longinoda* (Hoffmann et al. 2020; Kingdon and Hoffmann 2013).

Giant pangolins are normally solitary, except for females that are frequently accompanied by their single dependent young until the next infant is born (Kingdon and Hoffmann 2013). However, a pair of adults have been occasionally observed together, and several individuals using the same areas are regularly recorded, indicating their ranges might overlap (Hoffmann et al. 2020). Based on their large anal glands, males are presumed territorial and a few scent-marking activities have been observed. Mating occurs throughout the year. One infant is born, fully developed with soft scales and open eyes, weighing slightly over 500g and measuring 450mm long, and is nursed until its next sibling is born (Kingdon and Hoffmann 2013). Gestation period and longevity of the species is unknown.

**Conservation status and threats:** The giant pangolin is listed as **Endangered** on the IUCN Red List of Threatened Species, and was up-listed to Appendix I of CITES in 2016 along with all other seven pangolin species. It is accorded legal protection in most of its range states, with some cultures also giving it some level of protection by prescribing its hunting as a taboo (Hoffmann et al. 2020). However, the species' populations are sharply declining across its range, mainly driven by bushmeat trade, logging, forest transformation activities and the increasing international illegal trafficking of its scales (UNODC 2020; Hoffmann et al. 2020). While the giant pangolin is also used in traditional medicine, its exploitation as bushmeat is the most frequent use recorded in the bushmeat markets in western African countries and the Democratic Republic of Congo (DRC). Demand for this bushmeat is quite high as indicated by prices rising 211% and the meat is even being sold in areas out of the species' distribution range; an indication of imports (Hoffmann et al. 2020; Mambeya et al. 2018; Kingdon and Hoffmann 2013). Seven seizures of giant pangolin scales in Uganda in 2014 and 2015, eight in Kenya between 2013 and 2016, one large consignment in Cameroon in 2014, one in Kisangani, DRC in 2017, and one in Thailand which was transited through Kenya, is a clear indication of the exploitation of this species in the international illegal market (Hoffmann et al. 2020).

### 2.2.3 White-bellied Pangolin (*Phataginus tricuspis*) (Rafinesque, 1821)

**Morphological description:** A small, semi-arboreal African pangolin that weighs 1-3 kg and measures about 100 cm long with the tail amounting to 60% of its length (Jansen et al. 2020). It is the smallest of the Kenyan pangolins, with a head-body length ranging between 25 and 38 cm. The white-bellied pangolin has the most numerous scales (between 790 and 1140) of all pangolins, which are light-weight with three cusps (Jansen et al. 2020; Kingdon and Hoffmann 2013; Pocock 1924). The dorsal scales of this species are laterally striated and keeled (are longer than they are wide) compared to those on P. *tetradactyla* and other pangolin species. The belly skin is pale grayish-white and is covered with long (up to 20 mm) and sometimes dense white hair, while the face and limbs are covered in sparse and thicker black hairs (Jansen et al. 2020; Kingdon and Hoffmann 2013).

Like the other pangolins, its anatomy is highly adapted to a myrmecophagous (ant and termite) diet, with a highly developed and sensitive tongue for feeling and collecting prey. The tongue of *P. tricuspis* is "U-shaped" in its proximal region, a feature that is lacking in the other pangolins (Jansen et al. 2020). While the U shape function is unknown, the tongue's primary function is to collect prey, and with the help of the hyoid bones to direct it to a gizzard-like stomach which is lined with keratinized stratified squamous epithelium and dense collagen fibers where the prey is crushed. The second, third and fourth claws of both fore and hind feet are well developed to aid in breaking open the ant and termite nests to facilitate access to food. Beside the body colour, *P. tricuspis* can be distinguished from *P. tetradactyla* by the lack of very large post-scapular scales and the monotone scale coloration (Jansen et al., 2020). See Plate 3 and Table 3.

*Photo credit: Jiri Prochazka*

*Photo credit: Rod Cassidy*

**Plate 3:** Photos of White-bellied Pangolin (*Phataginus tricuspis*)

**Distribution:** Distribution of *P. tricuspis* overlaps that of *P. tetradactyla* in most of its range states but it is more widespread and is present in Benin and Togo where the latter species has not been recorded. In West Africa, it occurs in Guinea-Bissau and Guinea, Sierra Leone, Liberia, CÔte d'Ivoire and Ghana, but there are no confirmed records in Senegal or The Gambia (Jansen et al. 2020). It spreads through southern Nigeria, Cameroon, Equatorial Guinea including Bioko Island, Gabon, Republic of Congo, southern Central African Republic, DRC, southwestern South Sudan, Uganda, southwestern Kenya, northwestern and west of Lake Tanganyika in Tanzania (Kingdon and Hoffmann 2013), Burundi, Rwanda, northern Angola and northwestern Zambia (Jansen et al., 2020, Figure 5). A recent record from central Zambia suggests it may occur further south than previously recorded (Jansen et al., 2020).

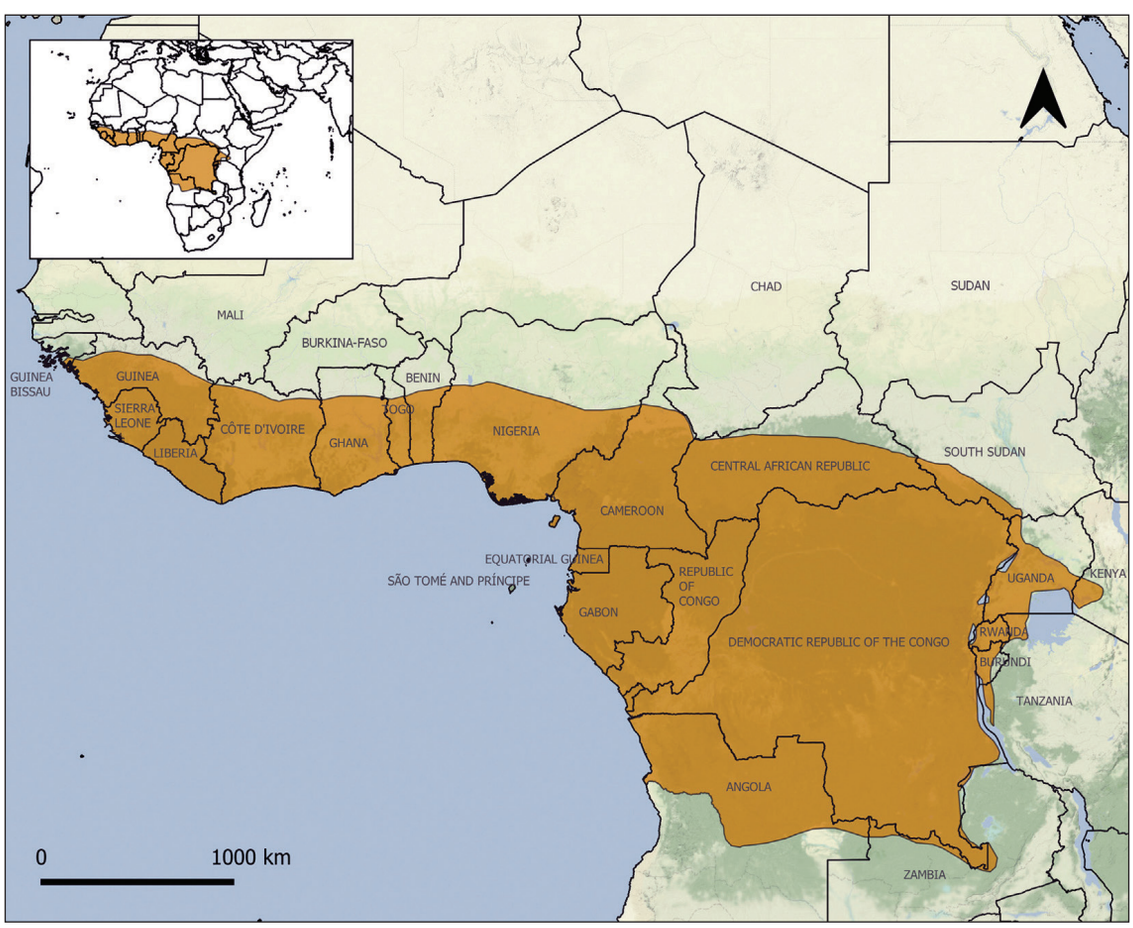



**Figure 5:** Map of *P. tricuspis* distribution in Africa
*(Pietersen et al. 2019; Kingdon & Hoffmann 2013)*

**Habitat:** White-bellied pangolins prefer forested habitats, including natural forests or plantations, but can also survive in abandoned agricultural land and forest-savannah mosaics (Jansen et al. 2020; Kingdon and Hoffmann 2013). While known to be adaptable to modified and degraded habitats, their persistence in such areas depends on the presence of suitable prey (ants and termites) in large quantities, presence of suitable denning sites (tree hollows and shallow burrows in the ground, often in termite mounds) and minimal human disturbance (Kingdon and Hoffmann 2013). Their habitats mostly overlap with those of *P. tetradactyla*, but show little preference for swamp forest.

**Behavioral ecology:** Despite being the most common and widely distributed of the forest pangolins, its behavioral ecology is not well documented (Jansen et al. 2020). The species is predominantly nocturnal. Males occupy larger home ranges (ranging from 2000 ha) than females (slightly over 30 ha) and the territorial male home ranges overlap with up to 10 female home ranges (Jansen et al. 2020, Kingdon and Hoffmann 2013). White-bellied pangolins rest in hollows dug in termite mounds, tree hollows or forks of tree branches and may prefer specific tree species to rest in (Kingdon and Hoffmann 2013). Males cover longer distances while foraging than females and the foraging time varies with the season. Following regular arboreal routes that they actively mark with their scent, they forage longer in the dry season than in the wet season when prey is more abundant (Jansen et al. 2020). With very poor eyesight, the species uses olfaction to search for arboreal and terrestrial ant and termite nests. Terrestrial army ants (*Dorylus* and *Mirmicaria*) and termites of the genera *Nasutitermes* and *Microcerotermes* comprise the bulk of the diet of *P. tricuspis* (Jansen et al. 2020; Kingdon and Hoffmann 2013). Other ant prey species include those of the genera *Camponotus, Cataulacus, Oecophylla* and *Crematogaster* spp. (Jansen et al. 2020).

White-bellied pangolins are semi-arboreal; in some areas they largely forage on the ground, while in others, they spend most of the time in trees. Like all the other pangolins, when threatened they curl up and release repulsive secretions to keep off predators (Kingdon and Hoffmann 2013). White-bellied pangolins are largely solitary; but females are often observed with their young, or with a male only when mating (Jansen et al. 2020). There is no specific breeding season. When breeding, the male seeks females, and they give birth to one pink and hairless young (rarely twins) that weighs about 100g and measures about 290mm after a gestation period of 140-150 days (Kingdon and Hoffmann 2013). The young are normally carried on the tail by the mother while foraging and become independent at 3-6 months (Jansen et al. 2020; Kingdon and Hoffmann 2013).

**Conservation status and threats:** *Phataginus tricuspis* is listed as **Endangered** in the IUCN Red List and in CITES Appendix I (IUCN 2022; CITES 2017) but Kenya, as well as Burundi and Liberia, have no legislative protection for it (Jansen et al. 2020). The population status of this species is unknown, but reportedly declining (Zanvo et al. 2020; Jansen et al. 2020; Mambeya et al. 2018). Human land transformation leading to habitat destruction, and direct exploitation of *P. tricuspis* are the major threats to its conservation and could lead to its extinction (IUCN 2022). Logging of its natural habitat (tropical forest) and conversion to agricultural land and human settlements are happening at alarming rates across its range (Jansen et al. 2020). This is taking place while its ecological behavior, population status and ability to adapt to modified habitats remain unknown (Zanvo et al. 2020; Jansen et al. 2020). Its exploitation trend in bushmeat,

traditional medicine and international trafficking is worrying (Vallianos 2017). It has been reported as the fourth most common species in bushmeat markets and is the most prevalent pangolin species found in the illegal trade; 82% of 341 pangolins confiscated in four months in Ghana (between 2013 and 2014) were identified as *P. tricuspis* and a large seizure of scales exported to China between 2013 to 2016 was estimated to come from 7000 individuals (Jansen et al. 2020).

### 2.2.4 Black-bellied Pangolin (*Phataginus tetradactyla*) (Linnaeus, 1766)

Although *P. tetradactyla* is not found in Kenya, its scales are often trafficked in the same shipments as the other species, including through Kenya, and thus we briefly introduce it here for reference by those working on combating wildlife trafficking initiatives. It is listed under CITES Appendix I and by the IUCN Red List of Threatened Species as Vulnerable with a declining population (IUCN 2022). The black-bellied pangolin is a small arboreal pangolin that weighs 1.1-3.6kg with a total body length of up to 120cm, including the very long tail (Gudehus et al. 2020; Kingdon and Hoffmann 2013; Pocock 1924). See Plate 4 below.

*P. tetradactyla* occur in forested regions of West and Central Africa from the west of Sierra Leone and ranges eastwards through Liberia, southeastern Guinea, Côte d'Ivoire and southwestern Ghana. This species' presence has not been recorded in Togo and Benin but it is present in southwestern Nigeria, then continues through southern Cameroon, southwestern Central African Republic, Equatorial Guinea, Gabon and throughout much of the Congo basin forest (Gudehus et al. 2020; Kingdon and Hoffmann 2013). The eastern Democratic Republic of the Congo (DRC) is the easternmost limit of the species' distribution and possibly the Semuliki valley of Uganda (Gudehus et al. 2020, Figure 6).

*Photo credit: Maja Gudehus*

*Photo credit: Alex Ley*

**Plate 4:** Photo of Black-bellied Pangolin (*Phataginus tetradactyla*) demonstrating 1) the arboreal nature of the taxon and 2) its key morphological characteristics. Note the differences in skin and scale coloration, as well as postscapular scale size, between this species and the closely-related white-bellied pangolin (Plate 3). (Gudehus et al. 2020).

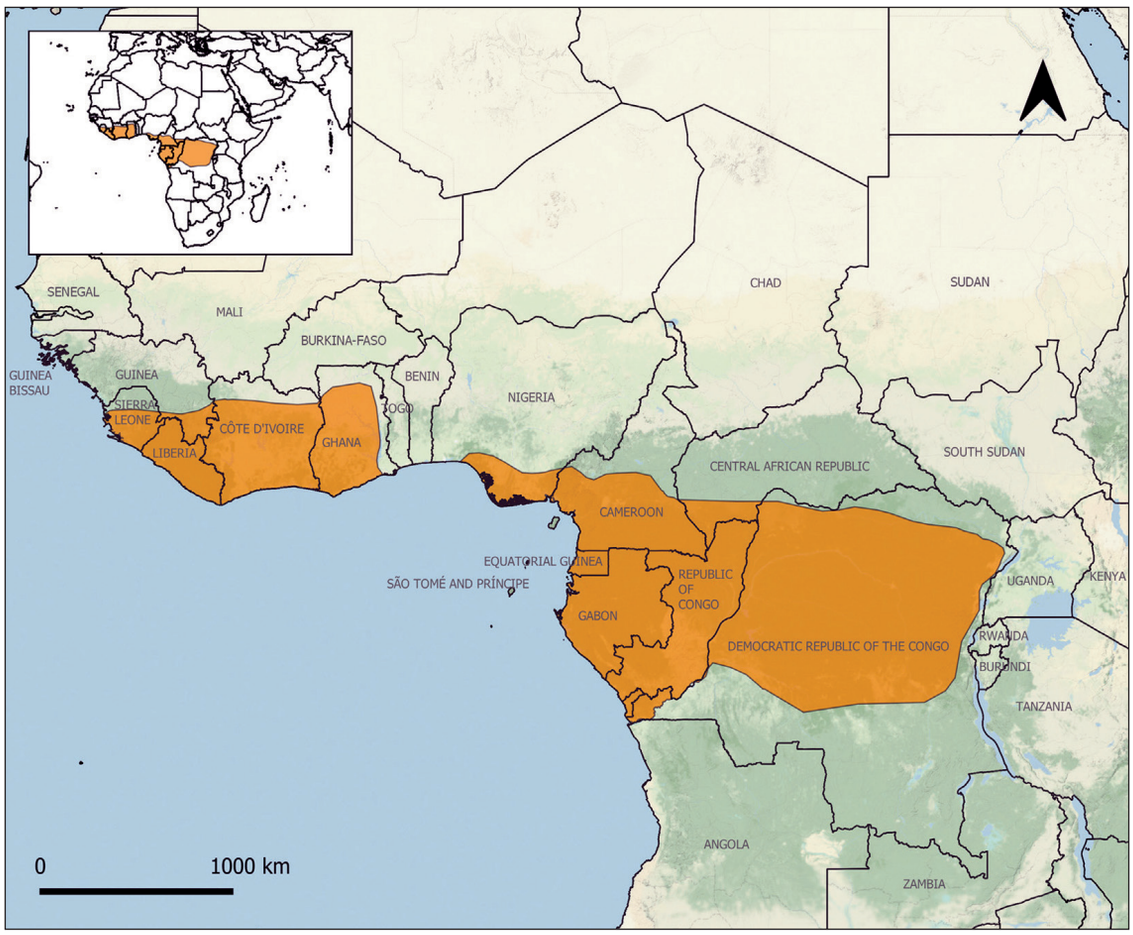



**Figure 6**: A map of *P. tetradactyla* distribution in Africa. Source: Ingram et al. 2019

**Table 2**: Summary of biological features of the three pangolins species found in Kenya

| # | Biometric parameter | *S. temminckii* | *S. gigantea* | *P. tricuspis* |
|---|---|---|---|---|
| **1** | Weight in kilograms average range and actual measurements range in ( ) | 6.0-9.3 (2.5-21.0) M 5.6-9.0 (4.6-15.8) F | 32.1 of one known male, 33 from unsexed individuals and average 28.8 from 119 individuals | 1.67-2.36 (1.2-2.86) M 1.71-2.60 (1.2-2.88) F |
| **2** | Total body length (Males) | 836-997 (634-1240) mm | 1438 (1370-1530) mm | 793.2 (617-1072) mm |
| **3** | Total body length (Females) | 827-984 (640-1250) mm | 1298 (1185-1365) mm | 768.4 (630-920) mm |
| **4** | Head-body (Males) | 431 (297-565) mm | 1088 mm | 319-350 (254-380) mm |
| **5** | Head-body (Females) | 458 (350-677) mm | 660 mm | 310-333 (265-367) mm |
| **6** | Tail (Male) | 405 (290-585) mm | 694 (650-710) mm | 469.6 (360-607) mm |
| **7** | Tail (Female) | 370 (223-440) mm | 596 (545-675) mm | 460.4 (350-590) mm |
| **8** | Breeding | Throughout the year and each female gives birth to one young per year | Throughout the year and each female gives birth to one young per year | Throughout the year. One young per birth. Twins are very rare |
| **9** | Walking | Mostly Bipedal | On all fours | On all fours |
| **10** | Number of scales | 382 (343-422) | 567 (446-664) | 935 (794-1141) |
| **11** | Scale rows (transversal on body) | 12 | 17 | 8-12 |
| **12** | Scale rows (longitudinal on body) | 11-13 | 13-17 | 19-25 |
| **13** | Scales on outer margins of tail | 11-13 | 15-19 | 35-40 |
| **14** | Scales on median row of tail | 4-7 | 11-15 | 30-33 |
| **15** | Key identifying information | Ground-dwelling and bipedal with yellow-brown or reddish-brown scales with a pointed tip | Larger and heavier than Temminck's, ground-dwelling and walks on all fours, has an elongated muzzle | Small, mostly arboreal, its tail is longer than its body, underside of body is white and scales have three cusps |

*(Jansen et al. 2020; Hoffmann et al. 2020; Pietersen et al. 2020; Kingdon and Hoffmann 2013).*

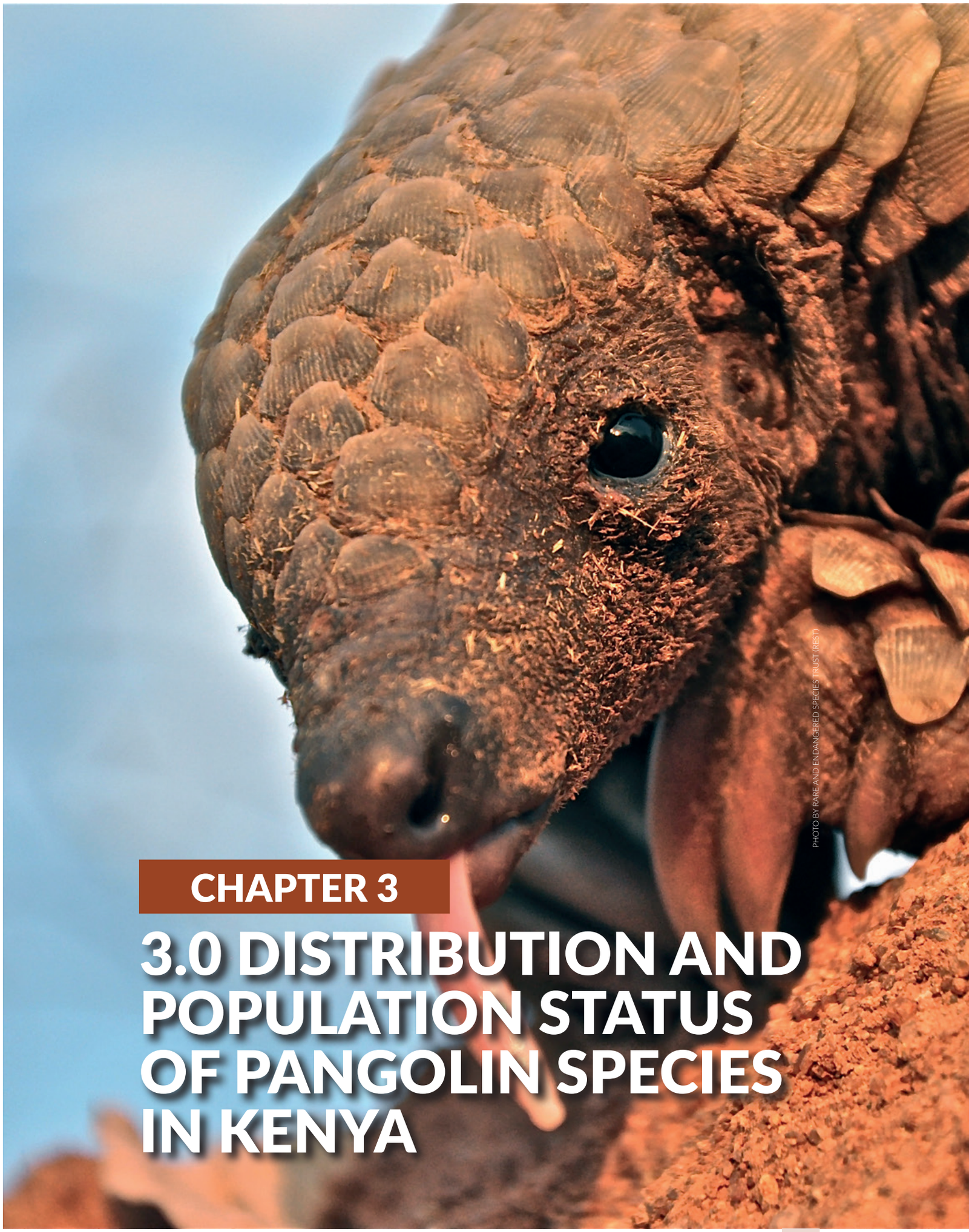


PHOTO BY RARE AND ENDANGERED SPECIES TRUST (REST)

CHAPTER 3

# 3.0 DISTRIBUTION AND POPULATION STATUS OF PANGOLIN SPECIES IN KENYA

Mapping the distribution of the three pangolin species in Kenya was based on information consolidated from literature review, key informant interviews, museum specimens in Kenya and court exhibit memos. Geographic coordinates and names of localities of confirmed pangolin sightings aided in distribution digitization (Musila et al., 2023).

## 3.1 Pangolin Species Distribution

Of the four African pangolin species, three occur in Kenya. These are: Temminck's Pangolin (*S. temminckii*), Giant Pangolin (*S. gigantea*) and White-bellied Pangolin (*P. tricuspis*). The known distribution of the three pangolin species in Kenya are covered in sections 3.1.1 to 3.1.3 below.

### 3.1.1. Temminck's Pangolin (*S. temminckii*)

This species is confirmed to occur in suitable isolated habitats from 12 counties: Narok, Kajiado, Machakos, Makueni, Kitui, Turkana, West Pokot, Elgeyo Marakwet, Baringo, Kilifi, Taita-Taveta and Kwale (see Figure 7 below). Although it is the most widespread pangolin species in Kenya, this does not mean the species is abundant or easy to encounter in the wild. Other possible areas where this species may occur but has not been confirmed include Meru Conservation Area (Meru National Park, Bisinadi National Reserve), Tana River, Wajir, Garissa, Mandera, Lamu, Laikipia and Samburu Counties (Musila et al. 2023).

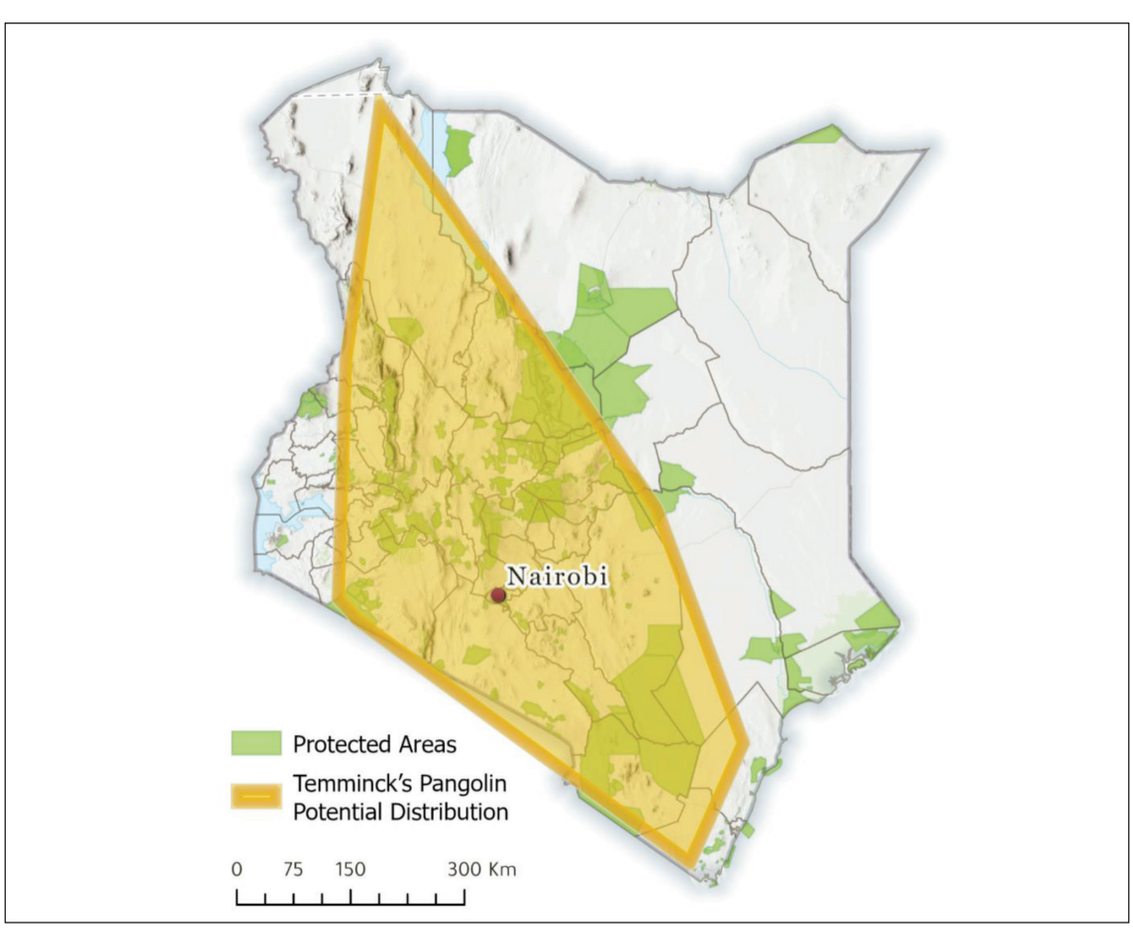



**Figure 7:** A map showing the potential distribution of *S. temminckii* in Kenya.

### 3.1.2. Giant Pangolin (*S. gigantea*)

This pangolin species is the most uncommon in Kenya. Although the presence of this species was reported in some areas around Lake Victoria in Kenya (Kingdon 1971), this remained unconfirmed for nearly 50 years until 2018. The species has now been confirmed to occur in some Afromontane forests of western Kenya (Sandri et al. 2022) (see Figure 8 below).

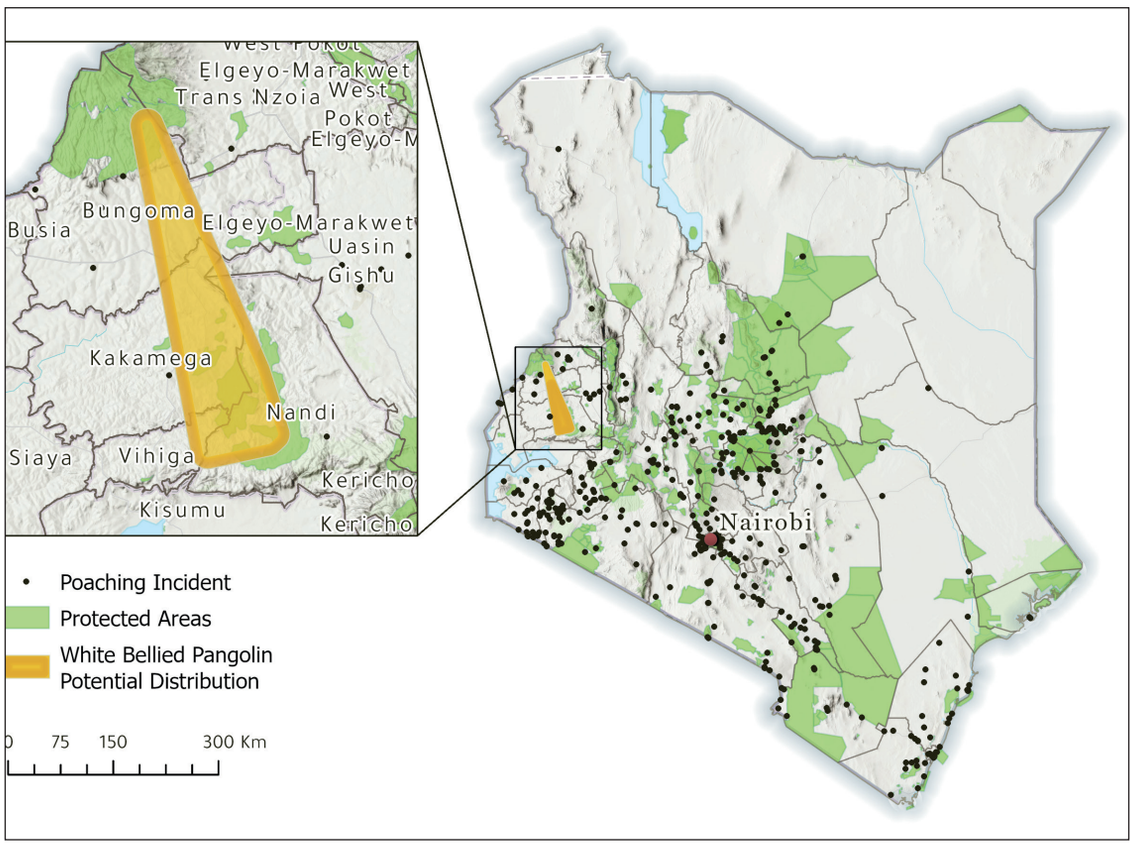



**Figure 8:** A map showing the potential distribution of *S. gigantea* in Kenya.

### 3.1.3. White-bellied Pangolin (*P. tricuspis*)

Individuals of *P. tricuspis* have been confirmed to occur in western Kenya (Figure 9 below). Individuals have been sighted in and outside of protected areas and have been reported to use hollows in various tree species.

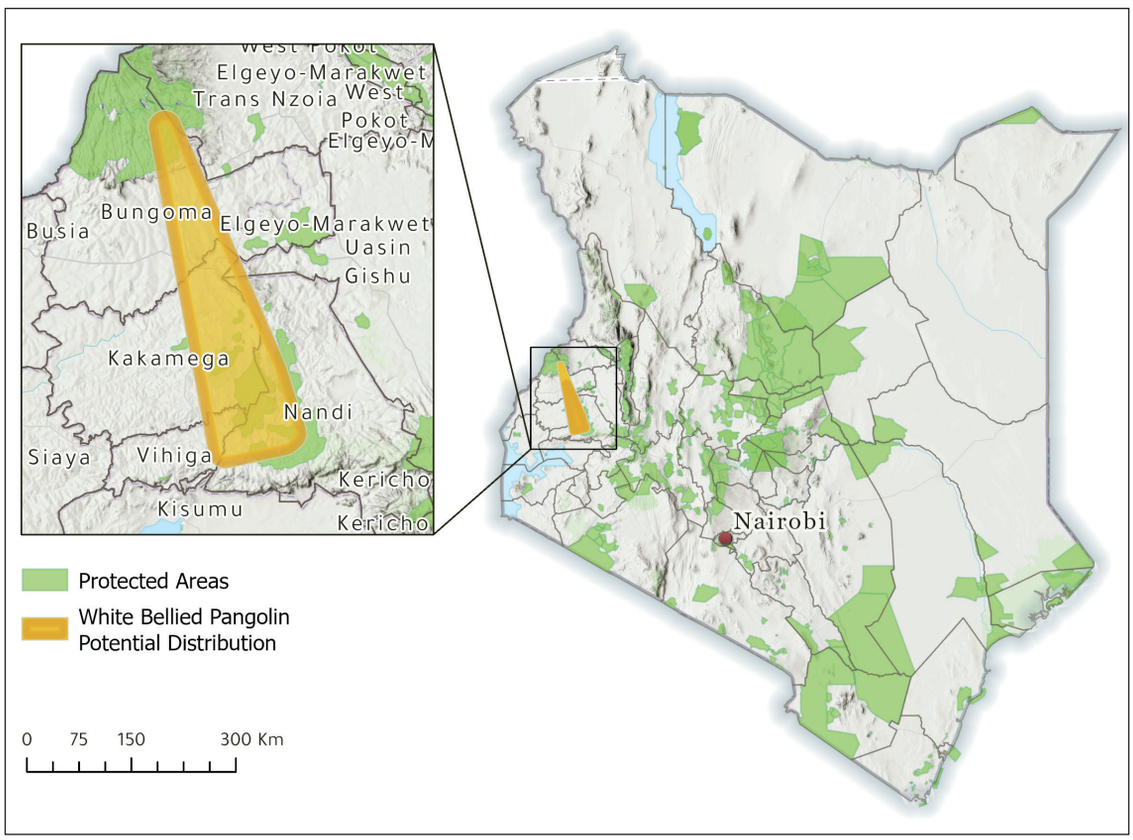


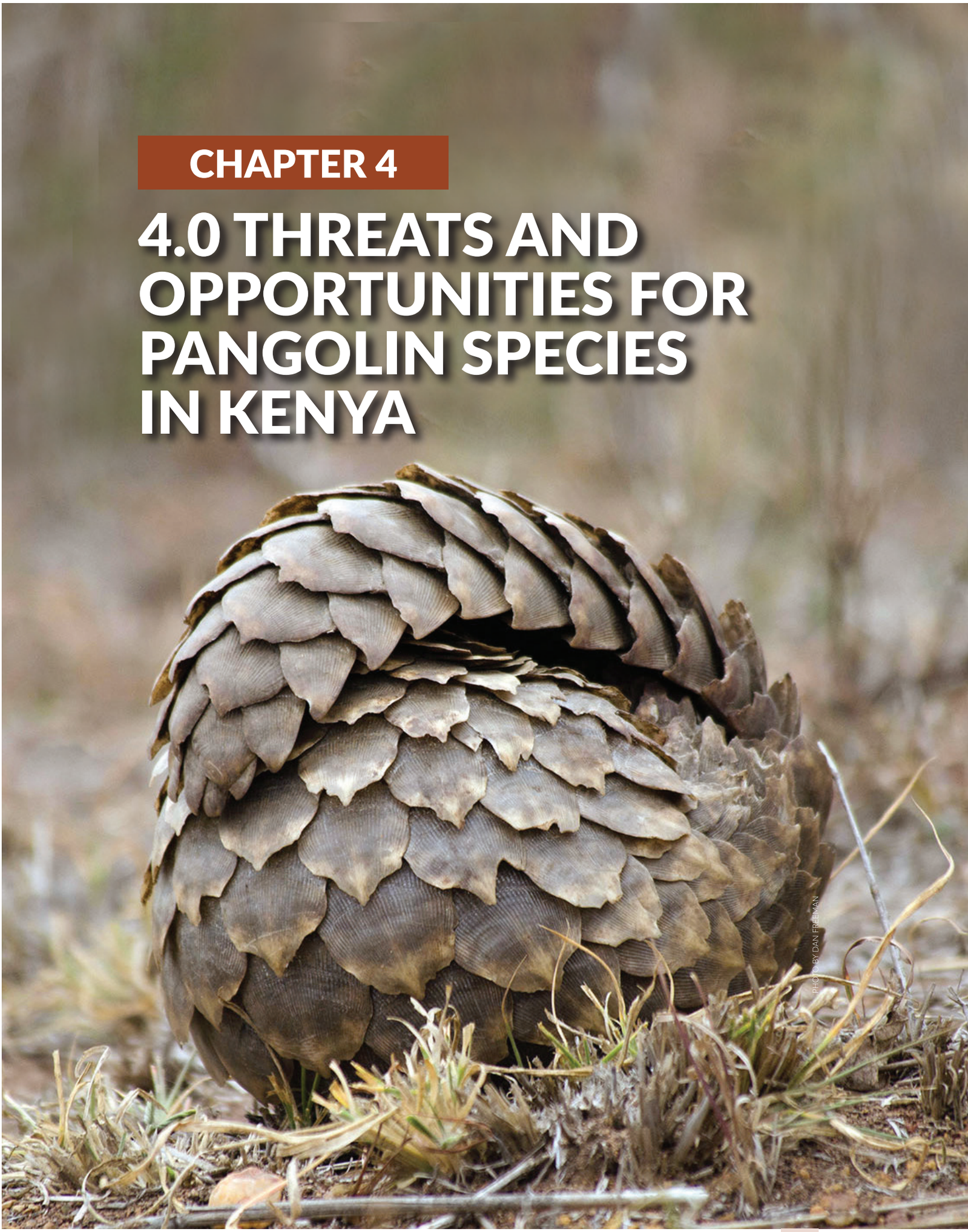

**Figure 9:** A map showing the potential distribution of *P. tricuspis* in Western Kenya

## 3.2 Population size and trends

Data is lacking on population size and structure of all three Kenyan pangolin species. Although population size estimates for the three pangolin species in Kenya have not been conducted, the severity of threats strongly suggests their populations are facing a decline. Given that sightings of two pangolins species (*S. gigantea* and *S. temminckii*) have been frequently reported in the conservancies around Maasai Mara (TPP 2022), this would be the best place to start ecological, population and health studies (under Strategic Objective 3).

CHAPTER 4

# 4.0 THREATS AND OPPORTUNITIES FOR PANGOLIN SPECIES IN KENYA



## 4.1 Threats

Based on literature reviewed, information available and analysis of interviews conducted with Kenyan wildlife conservation practitioners and Law enforcement officers, and people living in pangolin range areas in Kenya (described in section 1.2, Musila et al. 2023), this section presents the threats faced by pangolin species in the country. Poaching and trade in live animals, scales and meat, habitat loss and degradation, and electric fencing are the most serious threats pangolins face in Kenya. Other threats include subsistence and traditional hunting, the use of pesticides, the lack of legislative support for pangolin conservation, the lack of awareness of pangolins among enforcement officials and climate change.

### 4.1.1 Poaching and trade in pangolins

Similar to other wildlife crimes, pangolin poaching occurs in rural areas, around or at close proximity to confirmed range areas. Poaching of pangolins for the commercialization of their products (e.g., meat, scales, and skins) is the most serious threat that all eight pangolin species face. However, the extent and severity of this threat is yet to be determined in Kenya.

The evidence available of pangolin poaching in Kenya comes from reported incidents of apprehension of individuals with pangolins and pangolin products from 2015 to 2022, but the total number of pangolins poached in Kenya per year remains unknown. Given that pangolins were not a species of concern before 2016 (when all eight species were listed under CITES Appendix I), data of pangolin confiscations, trafficking incidents and arrests related to these are not readily available. Although it was not possible to ascertain the point of origin of pangolins and pangolin products seized at the time of arrest, the proximity of the locations where arrests took place to confirmed pangolin range areas in the country suggests that the pangolins and their products were likely sourced from these range areas within Kenya (Figure 10). For example, it is highly likely that individuals arrested in possession of *S. temminckii*, which was the species all seized live pangolins in Kenya belong to, in Tsavo Conservation Area (TCA) in Taita Taveta county, were poached from TCA since the species is present there. Most of the incidences of pangolin poaching were from Taita Taveta and Kwale Counties, areas which overlap the distribution of *S. temminckii* (Fig. 9; Fig. 7). Most of the pangolin poaching in Kenya is believed to be opportunistic, given that the majority of those arrested in possession of live pangolins and pangolin products are first offenders (TPP et al. 2022).

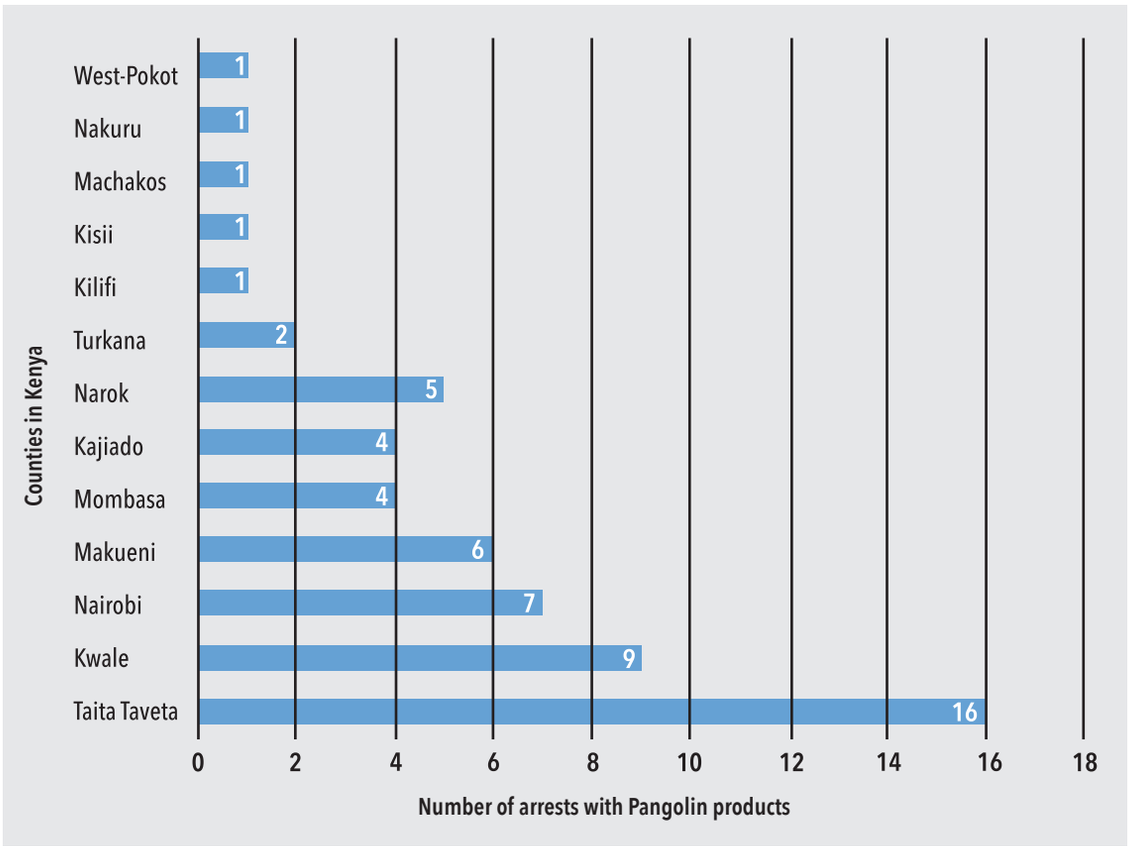



**Figure 10:** Reported arrests of individuals in possession of pangolins or pangolin products in different counties in Kenya from 2015-2022 *(Source: Musila et al. 2023)*

#### 4.1.1.1 National trade

This is the poaching and trade in pangolin products that exclusively occurs within Kenya. Although there is evidence of pangolin poaching taking place in Kenya, evidence that indicates a local demand for pangolins or their products is limited. Out of 58 incidents of people arrested with pangolin products in between 2015-2022, c. 86% (n=50) were cases of poaching within Kenya. The poachers were arrested before selling the products to buyers or traders and the majority were arrested with pangolin scales and live animals (Figure 11). These arrests did not provide evidence to suggest that the final destination of these products was in Kenya.

Sale of pangolin scales has been reported in Narok, Baringo and Marakwet but it is not clear who the final buyers of scales are, and there is no information regarding the price of a kilogram of scales or of adult live pangolins in Kenya. Research conducted by The Pangolin Project indicates consumption of pangolin meat takes place in Turkana, where the presence of *S. temminckii* has been confirmed (see 4.1.4.1), and that poachers contact buyers from Lokichar, Kitale and Lodwar to sell pangolin scales, but the end-buyers are not known (TPP 2022b).

From the data available on arrests with pangolins and pangolin products, the majority of individuals have been arrested with pangolin scales or live animals (Figure 11). Anecdotal evidence suggests that cases of individuals arrested with meat are rare but they do exist. Some individuals were arrested in possession of other wildlife trophies such as elephant tusks or carnivore skins, which strongly suggests that the pangolin products are destined for the international market rather than a domestic one.

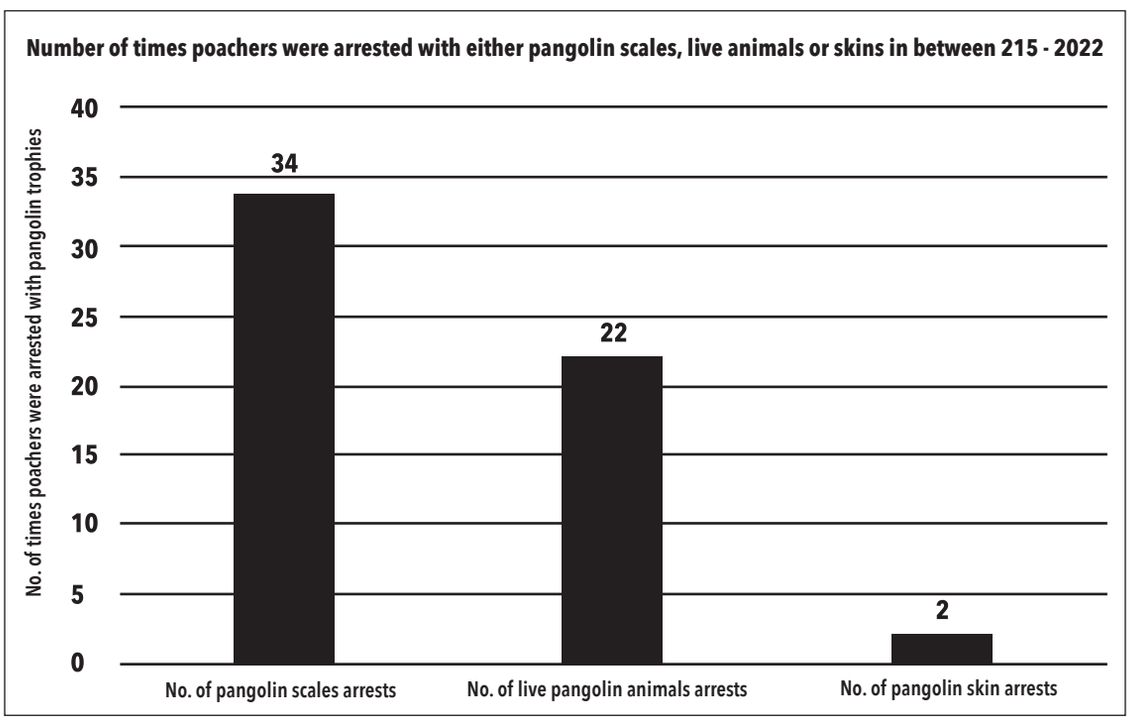



**Figure 11**: Different types of pangolin products seized from poachers in Kenya, 2015-2022. *(Source: Musila et. al. 2023)*

### 4.1.1.2 International trade

Out of 58 incidents of people arrested with pangolin products between 2015-2022, 14% (n=7) were cases of attempted trafficking of pangolin products out of Kenya via airports or harbor ports, with most illegal shipments confiscated at Jomo Kenyatta International Airport (JKIA) in Nairobi. The origin of all pangolins and pangolin products seized in these instances is not known, but most of these cases indicate pangolin products were being trafficked through Kenya rather than originating in Kenya. In 2015, a consignment of more than one ton of pangolin scales was discovered in a shipping container in Hong Kong which had arrived from Kenya; but it is unknown whether the shipment originated elsewhere in Africa and was simply transiting through Kenya (Weru 2016). In 2016, four cases of attempted shipment of pangolin scales were reported at JKIA, Kenya. Two were unaccompanied consignments discovered at JKIA, each of 500kgs of scales, one from Kinshasa, DRC, and the other from Conakry, Guinea, both in transit to China. The other two involved two different people of Chinese descent arrested at JKIA in 2016. In one of the cases a Chinese national was arrested with 0.2kg of pangolin scales upon arrival at JKIA from Yaounde, Cameroon, and was in transit to Guangzhou, China. The other Chinese national was arrested in transit to China with undeclared quantities of pangolin scales

from an unknown place of origin. In 2017, two cases were reported at JKIA. One involved a Chinese national traveling from Conakry, Guinea, in transit to China, but the quantities of pangolin scales were not declared. In the same year, another Chinese national was arrested at JKIA with 38.5kg of pangolin scales from DRC, enroute to Bangkok, Thailand (KWS canine unit 2016, 2017). All of these cases demonstrate that Kenya has been used as a transit route for pangolin scales procured from other countries between 2015 - 2017, but for how much longer this has taken place remains unknown. Since 2017, no other cases of attempted shipments of pangolin scales out of Kenya have been reported at JKIA or any other airport or harbor in Kenya.

Whether Kenyan pangolins are being poached and trafficked out of Kenya to feed the international market for pangolin products remains unknown. While most of the shipments seized in ports and airports demonstrate the pangolin products originated elsewhere in Africa, it is possible shipments containing Kenyan pangolins have been trafficked out of the country undetected. This evidence confirms that Kenya does play an important role in the international pangolin trade as a transit country for illegal consignments of scales from Africa to Asia, but whether it directly threatens Kenyan pangolins is not clear and further information is needed.

#### 4.1.1.3 Arrests and prosecution in Kenya from 2015-2022

Between 2015 and 2022, a total of 103 people were arrested in connection with poaching, possession or attempted trafficking of pangolin products in different parts of Kenya. The number of arrests increased sharply from two cases in 2016 to 25 in 2018, and thereafter started to decline to 13 in 2021, but increased again to 19 in 2022 (Figure 12). This may not necessarily suggest an increasing or decreasing trend in pangolin crimes in Kenya, as many factors can influence crime detection rates and subsequent arrests. There is no information regarding the role individuals arrested were playing along the trade chain – whether they had poached the animals themselves, were traders, middlemen or intended to use the products themselves is not known. Additional data related to other prosecution cases was not available at the time of writing this plan.

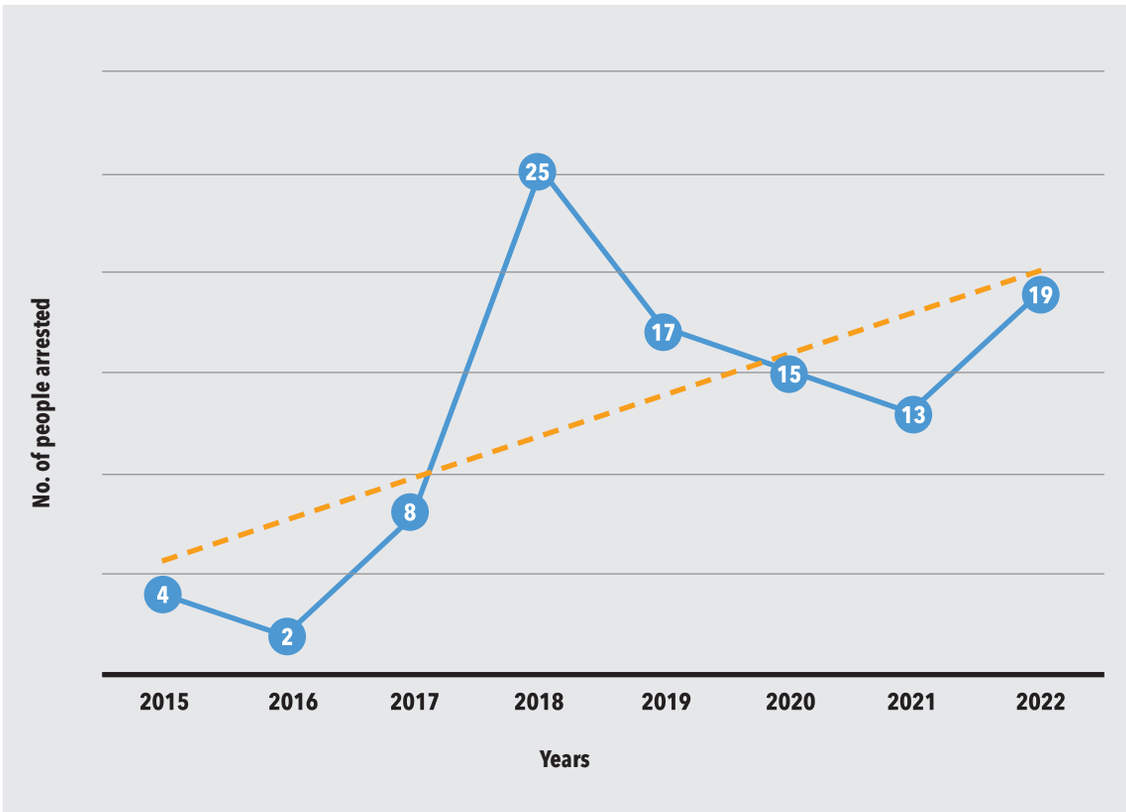



**Figure 12:** Trend in trade of pangolin products and related arrests in Kenya between 2015 - 2022
Dotted line shows the trend line *(Source: Musila et. al. 2023)*

### 4.1.1.4 High mortality of confiscated live pangolins

Available data shows that 22 arrests were of people apprehended with live pangolins from 2015 to 2022 (Figure 11). Although these pangolins were released back to the wild, these releases were not connected to pangolin monitoring programs and the officers in charge of the release do not necessarily understand the ecology or biology of pangolins, or how to select an optimal area for the release. Under the Evidence Act in Kenyan legislation, it is necessary that the courts see what is alleged to be the evidence, and in most cases this requires providing a physical exhibit in prosecution cases. Such has been the case with confiscated pangolins which have been used as exhibits and proof of the criminal offense. In cases where live animals are kept for eventual presentation to the courts as evidence to prosecute traffickers, they do not survive. It has been reported that pangolins die after ten days of being seized from traffickers (Claire Okell pers. obs.), but there have been cases where pangolins have died after 24 hours of being confiscated (TPP 2022). The high mortality of pangolins after confiscation from poachers can be attributed to stress, inadequate housing and diet, inappropriate handling, lack of veterinary care, and/or succumbing to injuries or diseases accrued during capture, transportation, or captive holding. Fortunately, progress has been made in this regard as courts are now accepting photos and video evidence to be presented in court instead of requiring live animals as proof.

Currently there are no pangolin rehabilitation centers outside of Nairobi County. Confiscated, rescued or injured pangolins are transported to the veterinary holding area at the KWS headquarters in the capital city where they are treated and taken to Nairobi National Park in the mornings and evenings for feeding. Pangolins are released as soon as possible to a suitable safe habitat due to the difficulties of keeping them in captivity. In cases where pangolins have been confiscated in remote areas and transportation to Nairobi is not possible, KWS veterinarians in collaboration with TPP provide technical support remotely on how to best care for the animals, advocating and facilitating the animals' prompt release. TPP's base office outside of Nairobi County has facilitated transportation, release and monitoring of pangolins that have been treated at KWS's veterinary facilities. Nonetheless, there is a great need for developing evidence-based captive care and release protocols for all three species of Kenyan pangolins. Once these protocols are developed, there is an equally great need to train all personnel involved in the process of confiscation, transportation, captive holding, and release of pangolins in these standards of care.

### 4.1.2 Habitat loss and degradation

#### 4.1.2.1. Trends and drivers of habitat loss in Kenya

Over the past 30 years, Kenya has undergone the lowest level of land cover change of any East African nation (Bullock et al. 2021). However, this disguises the fact that the small amount of forest cover in the country is being rapidly cleared, having declined from 15.7% of land area in 2004 to 6.6% in 2016 (Nyamari and Cabral 2021). A modeling study found that, under a business-as-usual scenario, forest would cover only 1.8% of Kenya by 2028 (Nyamari and Cabral 2021, Figure 13), mostly due to conversion to cropland, grassland for grazing, and settlements (Bullock et al. 2021; Nyamari and Cabral 2021). Some of the Afromontane forests in western Kenya have recently changed from a communally owned land tenure and subdivided into privately owned land with title deeds. As a result, the forest has been heavily destroyed through logging for timber, massive charcoal burning, building materials, firewood collection and livestock overgrazing (Tiller 2015).

While vast areas of bushland and woodland remain in Kenya, these land cover types are being cleared for crop cultivation, charcoal burning, human settlements and other infrastructural development such as roads, towns, etc. (Noe 2003, GOK 2021). Additionally, most communities living in rangelands are pastoralists keeping large livestock herds (such as goats, sheep, donkeys, camels and cows) which often leads to overgrazing and destruction of woody bushland cover, thus degrading the habitat.

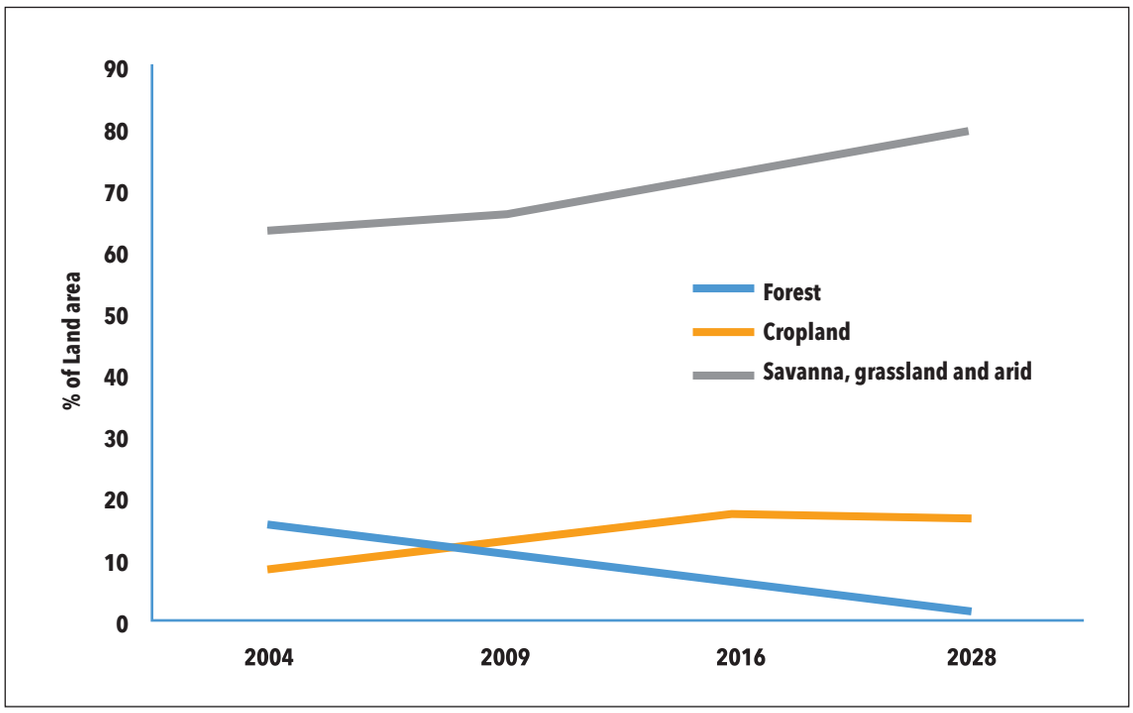



**Figure 13**: Land cover trends in Kenya, modeled up to 2028. Adapted from Table 4 in Nyamari and Cabral 2021.

### 4.1.2.2. Impacts of land cover trends on pangolins

The giant pangolin is a forest species dependent on good vegetation cover and water availability (Kingdon and Hoffmann 2013). The availability of suitable habitat for the survival of S. gigantea populations in Kenya is uncertain, but the trend to forest loss is deeply concerning for this species. Further, the small range of the species in Kenya means that its continued survival is dependent on good management of the forest blocks where it does occur. However, key forest blocks where *S. gigantea* occurs have faced widespread charcoal burning and logging of trees which has destroyed a large section of the forest (Leshan 2021; Nyagero 2016). Some forests have been subdivided and individual title deeds handed over to individual owners. Although the forest is not completely destroyed, it might only be a matter of time until all the landowners fully occupy their parcels of land and put them to use. Livestock overgrazing by Maasai pastoralists' herds is also a serious problem which hinders forest regeneration through grazing and trampling of young seedlings and saplings. Forest habitat condition is deteriorating rapidly and consequently could affect the survival of this species. It is predicted that by 2028, the habitat quality of some key forest blocks will be completely lost and thus unable to sustain *S. gigantea* (TPP 2022a).

Similarly, the white-bellied pangolin is a forest species which requires the presence of suitable trees. This species roosts in hollows of old trees (e.g. Plate 5) during the day and comes out at night to forage on the ground (Akpona et al. 2008; Jansen et al. 2020). *P. tricuspis* also roosts in or forages for ants in old fallen trees. Most of the forest reserves in western Kenya where *P. tricuspis* occurs face threats of charcoal burning, firewood collection and cutting of big trees. This means there may be a declining trend in the

quality of habitat suitable to sustain individuals of *P. tricuspis* in the range areas, although this is unconfirmed at present. Once again, the small range of this species in Kenya means that management of the forests where it does occur is critical to its survival. There is better news here, as some key blocks are managed by KWS to prevent activities that may adversely affect habitat quality for the species.

Temminck's pangolin occupies bushlands and savannas, habitat types which do not appear to be in short supply in Kenya. Consequently, habitat loss may not be a major threat for this species. However, there are questions relating to degradation of the rangelands covering much of Kenya. For example, most communities living in rangelands are pastoralists keeping large livestock herds (such as goats, sheep, donkeys, camels and cows) which often leads to overgrazing and destruction of woody bushland cover. Such areas will have reduced termite food resources for pangolins and can no longer provide adequate cover against natural predators and poachers. This situation is rife in much of Kitui, Makueni, Taita Taveta, Kwale, and Tharaka-Nithi Counties. The problem is serious during prolonged droughts which lead to pastoralist incursions into protected areas in search of forage for their livestock (e.g., Tsavos, Amboseli, Meru, etc. (Conservation Action Trust 2015; Nation 2022). The frequency of these droughts and their severity in Kenya's rangelands, has increased in recent years as a result of climate change (GOK 2021).

Activities that contribute to habitat degradation, such as grazing, large-scale logging and firewood collection, also leads to improved access to pangolin habitats. This can facilitate both intentional and opportunistic pangolin hunting. Overall, however, it is important to note that the effects on pangolin populations of habitat degradation is unknown. The effects of habitat degradation on pangolins have not been studied on any African species of pangolin. Where it has been studied, for example on the Sunda pangolin in South-East Asia, habitat degradation appears not to affect the species (Nursamsi et al. 2023). With the present state of evidence, it is difficult to know how much of a threat habitat degradation is to Kenyan pangolins.

*Photo Credit: Simon Musila*

**Plate 5:** Typical tree hole usable by white-bellied pangolins.

### 4.1.3 Fences and pangolin electrocution

A substantial portion of suitable pangolin habitat lies outside legally protected areas including private land, community trust land, and private and community ranches. Different land tenure landscapes (private, community, ranches, conservancies and even government owned PAs) are increasingly being demarcated and secured by several kilometers of barbed or electric wire fences. For the ground-dwelling pangolin species, *S. temminckii* and *S. gigantea*, these fences not only obstruct their movements, causing habitat fragmentation, but can also cause direct mortality, particularly electric fences. When a pangolin crosses over an electric fence, its unscaled abdomen is likely to make contact with the fence and receive electric shocks that cause the pangolin to curl up defensively around the electric wire. As a result, the pangolin receives a continuous pulse of voltage, which is oftentimes lethal (Pietersen et al. 2020, TPP 2022, Plate 6). In addition to direct mortality caused by injuries received from electric and barbed wire fences, if pangolins are caught in a fence they might die from exposure or dehydration (Pietersen et al. 2020). Electric fences are a significant cause of mortality for *S. temminckii* populations in Kenya along the private ranches bordering the Maasai Mara National Reserve (tour guides, pers. comm.) and elsewhere in Africa, particularly in South Africa (Pietersen et al. 2016).

*Photo Credit: The Pangolin Project*

**Plate 6**: A *S. gigantea* killed by an electric fence.

### 4.1.4 Other threats to pangolins

#### 4.1.4.1 Subsistence and traditional hunting

Kenyan tribes in confirmed pangolin range areas have traditional names for these species, suggesting that pangolins were or are still present in the area (Musila et. al. 2023). The general Swahili name for pangolins is *Kakakuona* (Musila et al. 2019). Different cultures across the country hold different beliefs towards pangolins (Kanana et al. 2020). For instance, the Luhya community living around Kakamega believe that one will live for many years if they come across a pangolin, while some Pokot communities believe that when any living thing encounters a pangolin, it dies, therefore whenever locals encounter a pangolin, they kill it (Musila et. al. 2023). There is evidence that ahead of a cattle raid, locals in Turkana eat pangolin meat (TPP et al. 2022). Consumption of pangolin meat has also been documented amongst the Pokot (Kanana et al. 2020) and pangolin scales are known to play a part in traditional rituals among different Kenyan tribes (TPP et al. 2022; TPP 2022b, 2022c).

Though beliefs surrounding the power or importance of pangolins are meaningful to many across Kenya, killing pangolins out of fear or for use in traditional medicines and rituals could be contributing to a decline of pangolins in Kenya. More human dimension studies are needed about the cultural significance of pangolins to understand how beliefs, attitudes and practices may be affecting these species. In cases where these pose a threat to pangolins, further studies can guide how behavior change techniques can be responsibly employed in conservation interventions. In cases where the use of pangolins is of significant cultural or ritual importance, further information is needed about the sustainability of these practices so they can be managed to ensure a future for both those cultural practices and the pangolins.

#### 4.1.4.2 Insufficient knowledge and scientific knowledge gaps

Many of the knowledge gaps regarding pangolins in Kenya have been outlined in this chapter and Chapter 2 and 3. Limited information exists on the three species' population status and distribution in the country, and although the amount of data on African pangolins is quickly increasing, the data gaps in Kenya are representative of the need for information in several other range states. Giant pangolins are one of the least studied pangolin species (along with black-bellied pangolins, not present in Kenya) and while Temminck's pangolins' distribution in its southern and western range has been evidenced in several studies, the species' eastern and northern ranges lack data (Heighton & Gaubert 2021). There is an absence of standard surveying methods for all pangolin species due to their elusive nature and declining numbers in the wild and thus, few abundance studies for African pangolins have been carried out in the continent. These problems are exacerbated by limited resources and capacity which is an on-going challenge for wildlife conservation.

Other serious knowledge and data gaps pertain to the lack of information and understanding on how some of the threats presented in this chapter directly or indirectly affect pangolin populations. Social research must be conducted to generate understanding on the practices that may be posing a threat to pangolin species in Kenya; unfortunately,

without data on population numbers, the impact of hunting, habitat loss and degradation, electric fences and other threats cannot be described with certainty.

#### 4.1.4.3 Use of pesticides and insecticides and other pollutants

In drylands, there is an increasing use of chemical pesticides, termiticides and insecticides to control ant and termite colonies, given that they destroy buildings and other wooden structures. These chemicals are inserted into the anthills or termite mounds near homesteads to kill the termite queen. The effects of such chemicals may spread over large areas and are known to persist for a long period of time. This may result in a loss of forage for pangolins, especially *S. temminckii*. However, the exact direct or indirect impacts of termiticide, insecticide or other pesticide use on *S. temminckii* populations in Kenya is unknown. Pangolins may face mortality from secondary or direct poisoning from these chemicals. Other forms of environmental pollution such as discharge of agrochemicals, industrial waste and even raw sewage into rivers may affect pangolins that prefer wetter areas, such as the S. gigantea. The impacts of these pollutants on S. gigantea or other pangolin species native to Kenya are not known.

#### 4.1.4.4 Legislative and administrative gaps and challenges

Currently, pangolins are not listed in Schedule Six of the WCMA (2013) which outlines priority species of conservation concern in Kenya. As such, pangolins have not been accorded the protection they deserve. At the time of writing this action plan, the wildlife law was being reviewed as The Wildlife (Conservation and Management) Bill 2022 and including pangolins in the relevant schedule was one of the changes proposed. As discussed in section 4.1.1.4, current legislation indicates that live pangolins must be brought to court as evidence for prosecution of poaching and/or trading. This arguably ensures live confiscated pangolins will die before they can be properly cared for or released, thus defeating the purpose of rescuing them from poachers and/or traders. A review of the current legislation has been done to include exemption of production of live confiscated wild animals in court and admission of electronic evidence (photographs and videos) is newly allowed.

Although there are institutional collaborative structures (i.e., KWS, NMK, DCI, KPS, etc.) in place to provide forensic identification of pangolin body parts seized from poachers and traffickers for prosecution, there are a number of challenges. Key among them are few prosecution officers to handle all cases in the entire country, leading to delays in the prosecution process. These officers are not necessarily trained to prosecute wildlife crimes and thus cannot sustain a water-tight case. Similarly, there are very few wildlife forensic experts serving the entire country, and this causes delays in prosecuting wildlife crimes and sometimes results in a case being dismissed due to absence of expert testimony. Poor handling of exhibits (chain of custody procedures) and crime scene processing are some of the main reasons some cases are dismissed, highlighting the need for training. The lack of coordinated data sharing mechanisms pose a serious obstacle to saving the species by key stakeholders such as law enforcement and management agencies.

#### 4.1.4.5 Lack of awareness and education

Many across Kenya, including local community members, are not aware of the existence of pangolins; they have never seen them and therefore are ignorant about their importance or conservation plight. Due to misinformation and lack of public awareness, there have been instances of pangolin persecution (killed in most cases) simply because people had never come across the animal before. The lack of public awareness that pangolins exist in Kenya and that they should be conserved can result in opportunistic or intentional hunting, continuation of potentially harmful practices (e.g., use of termiticides, bush burning) and a missed opportunity to celebrate and take pride in Kenya's natural heritage. Furthermore, during the development of this action plan, it was noted that members of government agencies had never heard of or seen pangolins either, thus informing key stakeholders of the challenges pangolins in Kenya face and the steps that must be taken to overcome these, particularly for those who will be in charge of ensuring protection and conservation of the species. In addition, there is a lack of consideration of the power and potential the media has around the narrative of news and stories related to pangolin crimes. In the past, the media has publicized the estimated monetary values of scales and live pangolins, which can inadvertently encourage the public to engage in poaching and illegal pangolin trade.

#### 4.1.4.6 Climate Change

Climate change results in changes in temperature and rainfall patterns which directly affect species and ecosystems (IPCC 2007). Such changes affect the availability, accessibility and quality of resources upon which both people and wildlife rely. Climate change may directly affect pangolins in a number of ways; prolonged droughts, which are associated with wildfires, reduced forage and water scarcity are threats pangolin populations could face in Kenya. Flooding in the drylands makes habitat for ground pangolins unsuitable (e.g., by flooding dens). These severe changes in current pangolin habitat have already been recorded in East Africa and it is uncertain the extent of impact they will have on pangolin populations (Xian et al. 2022).

Table 3 below is an analysis outlining the drivers, impacts, magnitude and severity of key threats faced by pangolins in Kenya.

***Key: Driver** - cause or motivation for threats; **Impact** - how pangolins may be or are affected, **Magnitude** - spatial extent to which pangolins are affected **Severity** - comparative level of threat impacts between low – moderate - high*

**Table 3:** Threats to pangolins in Kenya

| Threat | Driver | Impact | Magnitude | Severity |
|---|---|---|---|---|
| Poaching | Demand for scales for medicinal use | Population declines for the 3 species | Across confirmed ranges for 3 species | High |
| | Local demand for cultural rituals and potential meat consumption | Potentially affecting all the three species | Across the three species' range | Unknown |
| Habitat loss and degradation | Forest clearance for farming | Displacement and loss of feeding and roosting sites | Across the three species range | High |
| | Development urbanization and infrastructure | Displacement and loss of feeding and roosting sites | Across the three species range | Moderate |
| | Extensive logging depleting roosting/ breeding sites | Affect habitat suitability | Across the species range, particularly affecting white-bellied pangolins | Unknown |
| | Pesticide and insecticide use | Negatively impact pangolin prey and might result in direct or indirect poisoning | Might affect Temminck's pangolin and potentially giant pangolins | Unknown |
| | Intensive livestock grazing | Affect habitat suitability | Mainly rangeland habitats for Temminck's pangolin | Moderate |
| | Firewood collection, charcoal burning | Affect habitat suitability | Across the three species range | Moderate |
| Electric fencing | Subdivision of land and insecurity | Mortality and decline in population | Across the range of the two ground pangolin species | High |

**Table 3:** Threats to pangolins in Kenya

| Threat | Driver | Impact | Magnitude | Severity |
|---|---|---|---|---|
| Insufficient awareness, knowledge gaps | Other priorities for government agencies and limited capacity | Lack of prioritization of protection of pangolins, administrative challenges | Across the country and for 3 species | High |
| | Lack of standard surveying protocols, limited resource and capacity for research | Lack of pangolin population estimates leading to uncertainties when describing threats and measuring conservation results | Across the country and for 3 species | High |
| Climate Change | Worldwide unsustainable fossil fuel consumption | Weather and temperature trends changing potentially affecting pangolins' habitat | Possibly across the country but particularly in Temminck's habitat | Unknown |

## 4.2 Opportunities for pangolin conservation in Kenya

During the regional workshops and key informant interviews, wildlife conservation stakeholders across the country identified a number of existing opportunities for improving pangolin conservation in Kenya. These are outlined in Table 4 below.

**Table 4:** List of opportunities and how they can be realized

| Opportunity | Remarks | Threat Addressed |
|---|---|---|
| Readily available avenues for public awareness | Supplying media (e.g., digital, print, radio (including vernacular radio) and social media) with information about pangolins and their conservation | Insufficient public awareness and education |
| | World Pangolin Day celebrations | |
| Existence of capable research institutions in Kenya | Promoting work by wildlife research institutions and universities to generate and share scientific data (e.g., WRTI, NMK, KEFRI, TPP, Universities) | Knowledge and data gaps |
| | The knowledge gaps on pangolins present an opportunity for researchers to generate new knowledge that can help conserve the species | |
| Capacity enhancement among conservation actors | Building capacity of KWS and KFS rangers/ staff who can be trained on pangolin identification, rehabilitation and release of confiscated pangolins and existing protocols to rescue and rehabilitate | High mortality of live pangolins confiscated from poachers |
| | Building capacity of government and non-government personnel and organized communities (e.g., CWA, CFAs, Conservancies) to implement key aspects of the action plan | Poaching, habitat loss and degradation, electric fences, use of pesticides |
| | Training researchers and law enforcers on pangolin conservation including technology, methodology, handling and release | Poaching, knowledge gaps in scientific data on population sizes and distribution |
| Pangolins as an umbrella species for biodiversity conservation | Promoting the concept of pangolins as umbrella species within their range landscapes, where other species can benefit from pangolin protection | Habitat loss and degradation Poaching, administrative challenges |

**Table 4:** List of opportunities and how they can be realized

| Opportunity | Remarks | Threat Addressed |
|---|---|---|
| Existing collaborations and partnerships in Kenya | Strengthening existing law enforcements multi-agency approach (e.g., KWS, KFS, NPS, ODPP, Judiciary) | Poaching, administrative challenges |
| | Interregional cross-border collaboration (Kenya – Uganda, Tanzania, Ethiopia, South Sudan plus airports) to curb international trafficking of pangolins | Insufficient public awareness and education |
| | Promoting Public Private Partnerships in pangolin conservancies and tourism sector | |
| | Strengthening existing conservation and research institutional collaborations (e.g., KWS, NMK, WRTI, KFS, KEFRI, NEMA, TPP, NRT, IUCN-PSG, FFI, WWF, TRAFFIC, ZSL, AWF, etc.) | Knowledge and data gaps, administrative challenges |
| Devolution and resource availability at the county level | County Integrated Development Plans (CIDP) can provide intervention on land use, protected area/landscapes, culture, public participation, public awareness, governance and mobilization | Insufficient awareness and education, habitat loss and degradation |
| | County Governments can now provide resources to protect pangolins within their boundaries | Poaching, habitat loss and degradation |
| Presence of rich culture and indigenous knowledge in pangolin range areas | Recognizing existing cultural beliefs and practices favoring survival of pangolins | Knowledge and data gaps, poaching, lack of awareness and education |
| | Use of indigenous knowledge to support pangolin research and monitoring | |
| Increasing interest in pangolin conservation | Collaborating with government agencies, NGOs, civil society and the private sector to fundraise for and support pangolin conservation initiatives and research | Insufficient funding (for awareness creation, scientific research, anti-poaching, habitat protection and restoration) |
| | Engaging Communities to collect data through citizen science and technology (e.g., mobile phone apps) | Knowledge and data gaps, lack of awareness and education |

**Table 4:** List of opportunities and how they can be realized

| Opportunity | Remarks | Threat Addressed |
|---|---|---|
| Evident goodwill from government and communities to conserve pangolin | Engaging political goodwill by the national and county governments to conserve pangolin and other wildlife species, updating the Wildlife Act, and training law enforcement officers and the Judiciary | Poaching, habitat loss and degradation, administrative challenges, insufficient awareness and education |
| | Supporting communities to establish community conservancies and ranches where pangolins can thrive | Habitat loss and degradation, insufficient awareness |
| | Engaging support for pangolin conservation by local and international partners | Lack of resources, knowledge and data gaps |
| Established wildlife tourism industry in Kenya including pangolin range areas | Developing potential for tourism on community land as an incentive to conserve pangolins. | Habitat loss and degradation, poaching, insufficient awareness and education |
| Established law enforcement mechanisms to facilitate conservation of wildlife in Kenya | Building capacity of established law enforcement structures within KWS, KFS, KPS as well as community scouts, who work in collaboration with county security committee | Poaching |
| | Building capacity of established KWS wildlife crime lawyers and prosecution arm | |
| | Established security system (Security Patrols) by KWS rangers, Conservancy Rangers, community scouts, community guides | |
| | Presence of law enforcement agencies in Kenya NPS, ODPP, Judiciary | |
| Presence of national and international policy frameworks supportive of pangolin conservation | Existing conservation and sustainable use policy framework, laws and regulations addressing pangolin trade (WCMA 2013, FCMA 2016, EMCA 1999, CITES, Lusaka Agreement, African Strategy on Combating Illegal Exploitation and Illegal Trade in Wild Fauna and Flora in Africa, Global Biodiversity Framework and associated targets) | Poaching |
| | Customs regulations and control on export and transit material including wildlife trophies | |

**Table 4:** List of opportunities and how they can be realized

| Opportunity | Remarks | Threat Addressed |
|---|---|---|
| Presence of national and international policy frameworks supportive of pangolin conservation | Existence of the National Climate Change Framework Policy (Sessional Paper No. 3 2016)<br><br>Existence of county government spatial planning which can dedicate land for conservation | Habitat loss and degradation |
| Availability of land that can be used for wildlife, including pangolin, conservation | Vast wildlife habitats in Kenya with potential to create more community conservancies and extend range and space for pangolins, especially in ASAL areas where human population is sparse | Habitat loss and degradation |
| Habitat management and wildlife security structures in place | Existence of protected areas (parks, forests, conservancies) where habitat integrity is well maintained and pangolins are securely conserved | |
| | Establishment of pangolin sanctuaries for particular species in community areas | |
| | Existence of wildlife and ecosystems management structure under KWS and KFS | |
| | Employing the Wildlife Act 2013 to create, protect and restore threatened pangolin habitats | |
| | Mainstreaming pangolin conservation into ecosystem management plans by KWS and KFS | |
| Availability of modern technology | Supporting monitoring and surveillance by researchers and citizen scientists (e.g., KOBO collect, Mobile Apps like MAKENYA, VHF transmitters, ground and arboreal camera traps, etc.) to track and monitor pangolins | Knowledge and data gaps |
| Populations of pangolins still exist in the wild | The three pangolin species still exist in the wild in Kenya, though their population status is unknown | Insufficient awareness and awareness and education, knowledge and data gaps |

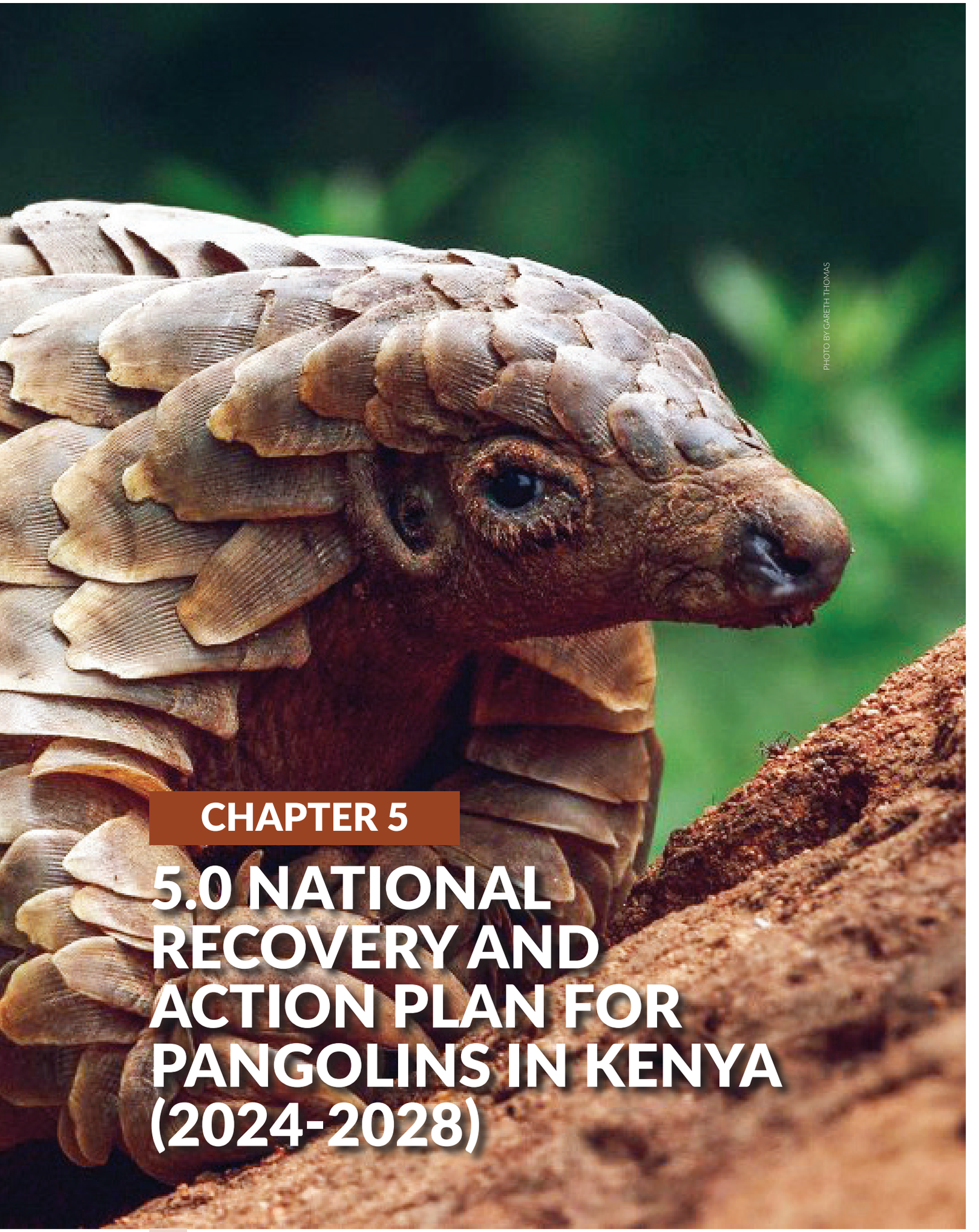


PHOTO BY GARETH THOMAS

CHAPTER 5

# 5.0 NATIONAL RECOVERY AND ACTION PLAN FOR PANGOLINS IN KENYA (2024-2028)

## 5.1 Vision

*To have well conserved viable wild populations of the three species of pangolin occurring in Kenya as a valued national and world heritage.*

## 5.2 Overall Goal:

*To secure and manage Kenya's pangolin populations and their habitats through combating poaching and illegal trade within and transiting through the country, knowledge generation and enhancing public awareness on the plight of the species.*

## 5.3 Strategic objectives (SO)

This action plan has six strategic objectives that seek to address pangolin conservation challenges in Kenya as identified during national and regional stakeholder consultative workshops. In order to achieve the overall goal and vision, specific actions (or activities) have been prescribed for each strategic objective within a logical framework. In the logical framework, these actions are thematically grouped under specific outputs within broader outcomes for each objective. Additionally, the top priority project/s that should be urgently implemented under each objective have been identified. The strategic objectives for this action plan are outlined in Table 5 below.

**Table 5:** List of Strategic Objectives

| |
|---|
| **SO1:** Fill critical knowledge gaps on pangolin-human dimensions, biology, ecology, and threats to support critical conservation interventions for the three pangolin species in Kenya |
| **SO2:** Combat pangolin crime |
| **SO3:** Ensure habitats suitable for the survival of pangolins in Kenya are secured and well managed |
| **SO4:** Enhance awareness and build capacity among wildlife law enforcement staff, local communities and other relevant stakeholders |
| **SO5:** Mobilize adequate resources to implement the activities in the action plan |
| **SO6:** Enhance coordination and collaboration in implementation of the action plan |

## 5.4 Logical Framework for Plan Implementation

This section presents the action plan implementation logical framework matrix, in which appropriate actions prescribed for various strategic objectives have been assigned overall priority, time scale, indicative budget (which has been estimated for each action by participants from the stakeholder validation workshop), and the stakeholders responsible for implementation. Furthermore, measurable indicators that would show that the activities have been achieved, as well as assumptions, are outlined. The prescribed conservation actions are systematically grouped under specific outputs within broader outcomes. During the workshops described in Chapter 1 Section 1.2 above, stakeholders were divided into six groups and each group was assigned one strategic objective to handle based on their experience and mandate. Each group completed the matrix for their respective objectives including budget estimates.

### Strategic Objective 1: Fill critical knowledge gaps on pangolin human dimensions, biology, ecology, and threats to support critical conservation interventions for the three pangolin species in Kenya

**Rationale:**
**Biological and ecological Studies:** Considering the existing knowledge gaps and inadequate research priority given to Kenyan pangolin species in the past, it is crucial to undertake both short-term and long-term studies in order to generate information and gain more understanding on the biology, population status, distribution, threats, movement pattern and habitat requirements of pangolins. This will help support adaptive management for protection of pangolin populations and their habitats as well as designing long term conservation and monitoring strategies.

**Social Studies:** While some traditional beliefs about pangolins have been recorded, cultural values and local use throughout Kenya are yet to be adequately recorded and their potential impact on pangolin protection and conservation initiatives assessed. Similarly, the extent to which poaching of pangolins in Kenya is destined to feed a local demand is unknown, as is the motivation driving local use of pangolin products. Research is needed to establish how practices at the local level are affecting Kenyan pangolin populations.

#### Priority Projects for SO 1

- Carry out baseline assessments and establish population estimates for each of the three pangolin species in Kenya
- Conduct research to identify and map pangolin range areas in Kenya (on-going)
- Conduct research to understand local demand and uses for pangolins and their products and extent of poaching in the country
- Conduct surveys of impact of electric fencing on populations of Temminck's and giant pangolins near and adjacent to the Maasai Mara National Reserve

| OUTCOME 1 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 1:1 Information on biology and ecology of pangolins generate | | | | Number of times reports are accessed | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD)** | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 1:1.1: Standard species-specific methodology and protocol for pangolin population surveys and monitoring developed** | | | | | | | | | |
| Action 1:1.1.1 | Develop and adopt standard data collection protocol for pangolin population surveys and monitoring | High | 12,500 | Standard Operating Procedure (SOP) | Available report | **WRTI, NMK**, KWS, Universities, TPP, TBA, IUCN-PSG, NRT, other NGOs | Year 1 | Funds availability, institution goodwill to collaborate | Technical Steering Committee |
| Action 1:1.1.2 | Develop short and long-term research programs on pangolins and their habitats with relevant stakeholders | Medium | 4,200 | Report document | Available report | **WRTI**, KWS, NMK, TPP, Universities, other NGOs | Year 2 | Funds availability, institution goodwill to collaborate | Technical Steering Committee |
| Action 1:1.1.3 | Explore using existing, and where necessary develop, citizen science mobile phone and web-based applications to map distribution and occupancy of the three pangolin species in Kenya | Medium | 12,500 | Monitoring apps, and submitted data | Available data and report | **WRTI**, KWS, NMK, Universities, TPP, TBA, NRT, other NGOs | Year 1 | Funds availability, institution goodwill to collaborate | Technical Steering Committee |
| Action 1:1.1.4 | Establish central and regional databases on pangolins e.g., seizures, mortality, genetics, sightings (or extract pangolin-specific information from existing databases) and develop data sharing agreements among relevant stakeholders | High | 12,500 | Databases in place being populated | Available data | **WRTI/ KWS**, KWS, NMK, Universities, TPP, other NGOs | Year 1 | Funds availability, institution goodwill to collaborate | Technical Steering Committee |

| OUTCOME 1 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 1:1 Information on biology and ecology of pangolins generate | | | | Number of times reports are accessed | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 1:1.1: Standard species-specific methodology and protocol for pangolin population surveys and monitoring developed** | | | | | | | | | |
| Action 1:1.1.5 | Coordinate procedures for curating, storing and transferring pangolin specimens (carcasses, skeletons and scales) at relevant national repository institutions | Medium | 12,500 | Agreement document report, Standard Operating Procedures | Available report | **NMK/ WRTI**, KWS, WRTI, Universities, TPP, other NGOs | Year 1 | Funds availability, institution goodwill to collaborate | Technical Steering Committee |
| **Output 1:1.2: Ecological, behavioral, and population dynamics of the three pangolin species is understood** | | | | | | | | | |
| Action 1:1.2.1 | Carry out baseline assessments and establish, pangolin occurrence, population estimates and map distribution for each of the three species in Kenya | High | 125,000 | Field reports, peer-reviewed publications | Published reports and data | **WRTI/ NMK**, WRTI, KWS, NMK, Universities, TPP, NRT, FFI, IUCN-PSG | Year 1-5 | Funds availability, institutional collaborations | Technical Steering Committee |
| Action 1:1.2.2 | Conduct scientific studies for each species focusing on diet, habitat suitability and use | High | 50,000 | Field report, peer-reviewed report | Published reports and data | **WRTI/ NMK**, KWS, NMK, Universities, NRT, TPP, FFI, IUCN-PSG | Year 1-5 | Funds availability, institutional collaborations | Technical Steering Committee |
| Action 1:1.2.3 | Use of emerging technologies (e.g., GPS trackers and telemetry) to monitor movement, home range and activity patterns of the three pangolin species in Kenya | Medium | 125,000 | Number of trackers and reports | Reports and data | **WRTI/ NMK**, KWS, NMK, Universities, TPP, FFI, TBA, WWF, IUCN-PSG | Year 1-5 | Funds availability, institutional collaborations | Technical Steering Committee |

| OUTCOME 1 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 1:1 Information on biology and ecology of pangolins generate | | | | Number of times reports are accessed | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 1:1.2: Ecological, behavioral, and population dynamics of the three pangolin species is understood** | | | | | | | | | |
| Action 1:1.2.4 | Conduct scientific studies on population ecology and dynamics of the three pangolin species in Kenya | Medium | 8,400 | Field reports, peer-reviewed reports | Published reports and data | **WRTI**, KWS, NMK, Universities, TPP, FFI, TBA, IUCN-PSG | Year 1-5 | Funds availability, institution goodwill to collaborate | Technical Steering Committee |
| Action 1:1.2.5 | Conduct scientific studies for each pangolin species focusing on predator prey interactions and also with other wild burrowing species | Medium | 8,400 | Field reports, peer-reviewed reports | Published reports and data | **WRTI**, KWS, NMK, TPP, Universities, FFI, TBA, WWF, IUCN-PSG | Year 1-5 | Funds availability, institutional collaborations | Technical Steering Committee |
| Action 1:1.2.6 | Conduct health assessments of pangolin species within a 'One Health' framework, including epidemiological surveys, toxicological sampling, and measuring of physiological parameters | Medium | 41,500 | Field reports, peer-reviewed reports | Published reports and data | **WRTI**, KWS, NMK, KALRO, Universities, TPP, FFI, TBA, WWF, IUCN-PSG, IPR | Year 1-5 | Funds availability, institutional collaborations | Technical Steering Committee |
| Action 1:1.2.7 | Collect genetic materials and conduct genetic studies (including barcoding) to assess the genetic diversity of Kenyan pangolin species and support forensic investigations | High | 84,000 | Reports and data | Published data | **WRTI**, KWS, NMK, Universities, TPP, FFI, TBA, WWF, IUCN-PSG | Year 1-5 | Funds availability, institutional collaborations | Technical Steering Committee |

| OUTCOME 1 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 1:1 Information on biology and ecology of pangolins generate | | | | Number of times reports are accessed | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD)** | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 1:1.2: Ecological, behavioral, and population dynamics of the three pangolin species is understood** | | | | | | | | | |
| Action 1:1.2.8 | Conduct experimental studies to establish whether pangolins can occupy artificial dens and roosting sites | Medium | 42,000 | Number of experimental studies undertaken, reports | Published reports and data | **WRTI**, KWS, NMK, TPP, Universities, FFI, TBA, WWF, IUCN-PSG | Year 1-5 | Funds availability, institutional collaborations | Technical Steering Committee |
| Action 1:1.2.10 | Explore ways of relocating isolated pangolin populations from insecure areas on a needs basis to identified suitable habitats | Medium | 42,000 | No. of reports produced | Publications | **WRTI, NMK**, KWS, TPP, FFI, TBA, WWF, IUCN-PSG, funding agencies | Year 1 | Funds availability | Technical Steering Committee |

| OUTCOME 2 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 1:2 All current and potential pangolin habitats are identified and mapped | | | | Map of pangolin distribution within Kenya updated throughout implementation of Plan. Habitat suitability assessment and modeling completed in Year 1. | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD)** | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 1:2.1: Maps of areas in and outside Protected Areas in Kenya where pangolin presence is confirmed are developed** | | | | | | | | | |
| Action 1:2.1.1 | Continue adding data points to the newly generated maps as more data on sightings become available | Medium | 29,000 | No. of updated maps | Data available | **NMK/WRTI**, TPP, KWS, community conservancies, County governments | Year 1-5 | Pangolin sightings are reported | Technical committee |

| OUTCOME 2 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 1:2 All current and potential pangolin habitats are identified and mapped | | | | Map of pangolin distribution within Kenya updated throughout implementation of Plan. Habitat suitability assessment and modeling completed in Year 1. | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD)** | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 1:2.1: Maps of areas in and outside Protected Areas in Kenya where pangolin presence is confirmed are developed** | | | | | | | | | |
| Action 1:2.1.1 | Continue adding data points to the newly generated maps as more data on sightings become available | Medium | 29,000 | No. of updated maps | Data available | **NMK/WRTI**, TPP, KWS, community conservancies, County governments | Year 1-5 | Pangolin sightings are reported | Technical committee |
| **Output 1:2.2: Assess suitability of other sites as pangolin habitat** | | | | | | | | | |
| Action 1:2.1.2 | Conduct habitat suitability assessments and modeling for potential pangolin habitats | High | 42,000 | No. of reports produced | Publications | **WRTI, NMK, Universities**, KWS, FFI, TPP, NRT, IUCN-PSG | Year 1 | Funds availability and commitment by respective institutions | Technical committee |

| OUTCOME 3 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 1:3 Poaching of pangolins in Kenya for local use and illegal trading within the country are understood | | | | By 2027 the level of pangolin offtake, motivations for poaching and trade routes within the country are understood. | | | | Assumption: information collected contributes to evidence-based design of interventions to address poaching, trade and use | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 1:3.1: Prevalence, frequency and quantity of pangolin poaching and use within Kenya is recorded and understood by the end of the first year of the plan's implementation** | | | | | | | | | |
| Action 1:3.1.1 | Carry out social science research in communities within and adjacent to known pangolin habitats and around poaching hotspots to gather data on offtake level and obtain understanding of motivation for poaching (e.g., selling, personal/household use) and perceptions, cultural values and beliefs associated with pangolins. | High | 250,000 | No. of research activities conducted in different communities, Report on pangolin products used, uses, purpose, quantities and frequency of offtake and profile of users and potential recommendation to reduce poaching | Data, research reports and publications see examples of papers written https://africanpangolin.org/research/published-papers/ | **KWS/ WRTI/ NMK, Universities community, FFI, TRAFFIC, WWF, TPP, IUCN-PSG** | Year 1 | Availability of funds, communities receptive to researchers, research topic does not present security risk to researchers | KWS/ WRTI/ NMK |
| Action 1:3.1.2 | Carry out social science research in different communities within and adjacent to known pangolin habitats to gather data on trade patterns and understand motivations for local use of pangolins, involvement of the community in pangolin protection and provision of information – can take place with previous activity | High | 250,000 | No. of research activities conducted in different communities, consumption prevalence estimate produced, motivations for consumption understood and pangolin offtake level estimated | data, reports and publications<br><br>see examples of papers written https://africanpangolin.org/research/published-papers/ | **KWS/ WRTI/ NMK, Universities, community, FFI, TRAFFIC, WWF, TPP** | 2023-2024 | Availability of funds, the community being cooperative | KWS, WRTI |

| OUTCOME 3 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 1:3 Poaching of pangolins in Kenya for local use and illegal trading within the country are understood | | | | By 2027 the level of pangolin offtake, motivations for poaching and trade routes within the country are understood. | | | | Assumption: information collected contributes to evidence-based design of interventions to address poaching, trade and use | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 1:3.1: Prevalence, frequency and quantity of pangolin poaching and use within Kenya is recorded and understood by the end of the first year of the plan's implementation** | | | | | | | | | |
| Action 1:3.1.3 | Carry out social science research in large urban centers (Nairobi, etc.) in the country to gather data on use and/or consumption of pangolins and their products, frequency of consumption, trade patterns and understand motivations for use/consumption | High | 70,000 | No. of research activities conducted in different urban centers; consumption prevalence estimate produced, motivations for consumption understood | Data research report | **KWS/ WRTI/ NMK, Universities, community, FFI, TRAFFIC, WWF, TPP** | 2024 | Availability of funds, communities receptive to researchers, research topic does not present security risk to researchers | KWS, WRTI |
| **Output 1:3.2: Pangolin trade routes within Kenya and key actors involved are identified by second year of plan's implementation** | | | | | | | | | |
| Action 1:3.2.1 | Conduct desk-based research and collate existing data on national pangolin trade routes and add to this the findings from Output 1:2.1, to map out trade patterns by 2024 | High | 15,000 | Existing data (from WWF, TRAFFIC, TPP, others - i.e., Wildlife Justice Commission?) is collated with desk research and findings from Output 1.1 National and transboundary pangolin trading routes mapped | Research report, trade route maps | **KWS/ WRTI, NMK, LATF, Customs, Maritime Authority Communities, FFI, TRAFFIC, TPP, WWF, FFI, ZSL** | 2024 | Data is available and can be shared, ability to confirm whether pangolins come from Kenya or outside by law enforcement officers | KWS, Task Force |

| OUTCOME 3 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 1:3 Poaching of pangolins in Kenya for local use and illegal trading within the country are understood | | | | By 2027 the level of pangolin offtake, motivations for poaching and trade routes within the country are understood. | | | | Assumption: information collected contributes to evidence-based design of interventions to address poaching, trade and use | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 1:3.2: Pangolin trade routes within Kenya and key actors involved are identified by second year of plan's implementation** | | | | | | | | | |
| Action 1:3.2.2 | Combine findings of Action 1:1.1.1 and 1:1.2 with information on local pangolins seizures and confiscations from KWS database (Output 3.2) and investigations of arrests, to build holistic picture of trends in pangolin poaching and trading routes | High | 20,000 | Pangolin poaching hotspots identified and live intelligence map created where trade routes are monitored | Map of hotspots and platform where data is recorded (e.g., EIA online crime tracker) | **KWS/ WRTI, FFI, TRAFFIC, TPP, WFF** | 2026 | Pangolin seizures and confiscations are recorded consistently. Ongoing capacity to collect information and input into live intelligence map. Funding for such platform is available | KWS/ WRTI |

| OUTCOME 4 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 1:4 Other threats to pangolins and pangolin habitats are understood | | | | Annual sales/use of termiticides recorded / Annual roadkill and electric fence mortalities recorded / Annual incidences of bushfires in suitable pangolin habitat recorded. All by end of year 2 | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Outcome 1:4.1: Key threats to Pangolin habitats identified** | | | | | | | | | |
| Action 1:4.1.1 | Conduct inventory of known threats to pangolin habitats in specific sites | High | 20,000 | No. of sites covered | Research reports, publications | **WRTI,** KWS, NMK, TPP, NRT, Universities, | 2026 | Availability of funds | **WRTI** |

| OUTCOME 4 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 1:4 Other threats to pangolins and pangolin habitats are understood | | | | Annual sales/use of termiticides recorded / Annual roadkill and electric fence mortalities recorded / Annual incidences of bushfires in suitable pangolin habitat recorded. All by end of year 2 | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Outcome 1:4.1: Key threats to Pangolin habitats identified** | | | | | | | | | |
| Action 1:4.1.2 | Identify and monitor site-specific anthropogenic and non-anthropogenic threats to pangolins across sites where they occur to inform decisions | High | 125,000 | Field reports and data | Report and data | **NMK,** KWS, WRTI, Universities, TPP, NRT, FFI, IUCN-PSG, APWG | Year 1-5 | Funds availability, community and institutional collaborations | Technical Steering Committee |
| **Output 1:4.2: Use of pesticides and insecticides in pangolin habitat is assessed** | | | | | | | | | |
| Action 1:4.2.1 | Assess local practices regarding the use of pesticides and insecticides in and around identified pangolin habitats | Medium | 15,000 | No. of reports | Surveys | **WRTI,** KWS, NMK, TPP, NRT | Year 2-5 | Availability of funds | KWS |
| Action 1:4.2.2 | Research on alternative products or measures to address widespread use of chemical pesticides and insecticides in pangolin habitat e.g. Decision for locust sprays should involve DG KWS | Medium | 15,000 | Increased use of alternative products | Reports | **WRTI,** KWS, NMK, Min Agric., TPP, NRT | Year 2-5 | Availability of funds | WRTI |
| Action 1:4.2.3 | Explore the extent and magnitude of threat from pesticides and insecticides on pangolin species and populations | Medium | 50,000 | Types, quantity of exposure and type of exposure of pesticides and insecticides that are harmful to pangolins are understood and recorded | Research reports, scientific publications | WRTI, NMK, TPP, IUCN-PSG, Universities | Year 3-5 | Availability of funds, results can be generalized to other pangolin species and/or habitats | WRTI |

| OUTCOME 4 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 1:4 Other threats to pangolins and pangolin habitats are understood | | | | Annual sales/use of termiticides recorded / Annual roadkill and electric fence mortalities recorded / Annual incidences of bushfires in suitable pangolin habitat recorded. All by end of year 2 | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 1:4.3: Evaluate impact of electrocution from electric fences and roadkills on highways** | | | | | | | | | |
| Action 1:4.3.1 | Conduct surveys of electrocutions along fences and roadkills on highways traversing pangolin range areas | High | 5,000 | No. of surveys done | Survey reports | **WRTI,** KWS, NRT, TPP, NGOs Funding agencies | Year 1-5 | Availability of funds | KWS |

## Strategic Objective 2: Combat pangolin crime

**Rationale:** Poaching and illegal trade of pangolins and their body parts are the most serious threats to pangolin survival in the world today. It is critical that pangolins in Kenya are effectively protected from poaching through enhanced security, patrols and surveillance in their known range areas within and outside protected areas (PAs). This will be achieved by strengthening law enforcement across the country to reduce and prevent pangolin poaching and trade within Kenya and to limit the trafficking of pangolins and their body parts from or through Kenya to the international markets.

## Priority Projects for SO 2

- Deploy law enforcement and patrols to monitor identified poaching and trading hotspots within the country.
- Enhance law enforcement capacity to detect, seize and investigate pangolin poaching, national trading and international trafficking incidents at key ports and border crossings.
- Design and implement protocol to handle, rehabilitate, release, and monitor live confiscated pangolins.

| OUTCOME 2:1 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:1 Poaching of pangolin species in Kenya for local use is reduced | | | | Prevalence of local pangolin poaching within Kenya is reduced | | | | Assumption: information collected contributes to evidence-based design of interventions to address poaching, trade and use | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:1.1: Interventions to address the above are implemented by late 2026.** | | | | | | | | | |
| Action 2:1.1.1 | Design and implement interventions to address local consumption/use (e.g., behavior change, community engagement, alternative products) if these practices present a serious threat to pangolin populations in Kenya by 2026 | High | 200,000 | Reduced prevalence of local pangolin use. Theory of Change and interventions' design demonstrates how activities are expected to achieve reduction in pangolin use | Interventions' materials, proof of delivery, evaluation from pre- & post intervention baseline (demonstrating a reduction in use of pangolins and their products) | **KWS,** County Governments, Community leadership and interest groups (e.g., traditional doctors, local groups, leaders, etc.), TPP, FFI, IUCN-PSG, APWG, TRAFFIC, | 2026 | Availability of funds, communities are receptive | KWS, TPP |
| Action 2:1.1.2 | Evaluate interventions implemented under Action 2:1.1.1 and compare to baseline research and triangulate with pangolin seizure data by 2027 | High | 40,000 | Social research replicating baseline research in communities and urban centers; comparison of seizure data shows a decrease in pangolin seizures / confiscations for local trade | Evaluation report | **KWS/WRTI/ NMK,** Universities, Communities, FFI, TRAFFIC, WWF, TPP, Tsavo Trust, NRT, Big Life | 2027 | Availability of funds, communities receptive to researchers, research topic does not present security risk to researchers, the same individuals involved in designing and evaluation are available | KWS, TPP |

| OUTCOME 2:2 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:2 Enhanced capacity of law enforcement agencies to reduce illegal trade in pangolins and their body parts | | | | Percentage of officers with capacity to detect pangolins and their products in trade demonstrate application of techniques in entry/ exit points in Kenya throughout implementation of plan. | | | | Assumption: displacement to other trade routes and changes in concealment techniques are detected | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:2.1: Wildlife Conservation and Management Act 2013 is reviewed to include all Kenyan pangolin species in the national list of threatened species by end of 2024** | | | | | | | | | |
| Action 2:2.1.1 | Review Kenyan legislation to increase compliance with CITES by end of 2023 | High | 5,000 | Relevant international legislation summarized, Gaps in national legislation revealed to increase compliance with CITES | Legislation summaries, Analysis of national legislation on CITES compliance | **KWS/CITES secretariat,** Ministry of Tourism and Wildlife, FFI, NAP, | 2024-2025 | Time from agencies to meet for reviews | KWS, NAP secretariat |
| Action 2:2.1.2 | Enforcement of the penalties on endangered species provided for in WCM Act, 2013 | High | 20,000 | No. of cases successfully prosecuted | Workshop reports, draft submissions and recommend-ations | **KWS/ CITES secretariat,** ODPP partners | 2024-2027 | Support from judiciary, processed timely, goodwill from govt. Funds available | KWS and law enforcement agencies |
| Action 2:2.1.3 | Lobby for the explicit inclusion of all Kenyan pangolin species in the national list of threatened and protected species, (schedule 6) of the WCMA by year one | High | N/A | All pangolins included in 6th Schedule of WCMA | Amended WCMA | **KWS,** WRTI, NMK, NCAJ (legal reform commission), AG's office, DPP, CAK | 2024 | Support from parliament, timely process, goodwill from govt. | KWS and Ministry of Wildlife and Tourism |
| Action 2:2.1.4 | Submit recommendations of inclusion of pangolins on the list of endangered species in the Wildlife Act to Ministry to be forwarded to Parliament for discussion and approval of 3.1.2 in Q1 of 2024 | High | N/A | Submission of the draft amendments | Details of delivery of the submissions | **KWS/AG,** Ministry of Tourism and Wildlife, legislative arm of govt, ODPP, Partners | Q1 2024 | Support from parliament, timely process, goodwill from govt. Finances | KWS, Ministry of Wildlife and Tourism |

| OUTCOME 2:2 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:2 Enhanced capacity of law enforcement agencies to reduce illegal trade in pangolins and their body parts | | | | Percentage of officers with capacity to detect pangolins and their products in trade demonstrate application of techniques in entry/ exit points in Kenya throughout implementation of plan. | | | | Assumption: displacement to other trade routes and changes in concealment techniques are detected | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:2.1: Wildlife Conservation and Management Act 2013 is reviewed to include all Kenyan pangolin species in the national list of threatened species by end of 2024** | | | | | | | | | |
| Action 2:2.1.5 | Gazettement of the amendments and implementation by end of 2024 | High | 5,000 | Gazette notice | Gazette notice publication | AG/GOVT PRESS, **Ministry, KWS** | 2024 | Timely movement of the amendments from ministry to AG and amendments are actually passed in a timely manner | KWS, NAP SEC |
| **Output 2:2.2: Establish at KWS, a database on all pangolin related crimes managed with (on-going) contributions from other agencies by 2025** | | | | | | | | | |
| Action 2:2.2.1 | Extract pangolin specific information from existing database on wildlife crime (from investigation unit at KWS) to use it as the baseline by mid-2024 | High | N/A | Established national database and system (on pangolin and pangolin products crime) in place | Pangolin crime data available | **KWS**, NMK, NPS, DCI, DPP, TPP, FFI, WRTI, AWF, WWF, IUCN-PSG, APWG, TRAFFIC | 2024-2027 | Sharing of information, data available, resources for data collection | KWS |
| Action 2:2.2.2 | Training of officers (evidence custodians, who input data; officers in charge of investigation in field stations) on the use of electronic case management system to input pangolin crimes across the country | Medium | 20,000 | No. of officers from different agencies trained | Training reports, Training manuals, Investigation reports detailing actors involved, pangolin origin, trade route and networks. | **KWS,** WRTI, NMK, NPS, DCI, DPP, Judiciary, TPP, FFI, IUCN-PSG, , APWG, TRAFFIC, KWS/ NPS, ODPP, DCI, WRTI, NMK | 2024 | Availability of Funds for Training of officers | KWS |

| OUTCOME 2:2 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:2 Enhanced capacity of law enforcement agencies to reduce illegal trade in pangolins and their body parts | | | | Percentage of officers with capacity to detect pangolins and their products in trade demonstrate application of techniques in entry/ exit points in Kenya throughout implementation of plan. | | | | Assumption: displacement to other trade routes and changes in concealment techniques are detected | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:2.2: Establish at KWS, a database on all pangolin related crimes managed with (on-going) contributions from other agencies by 2025** | | | | | | | | | |
| Action 2:2.2.3 | Offenders arrested hunting pangolins or in possession/ selling pangolin products are investigated to gain an understanding of trade patterns, end-buyers, locations where pangolins are obtained | High | 50,000 | 50% of apprehen-sions of individuals hunting/in possession/ selling pangolins are investigated by 2026 and 100% are investigated by 2028 | Investigation reports detailing actors involved, pangolin origin, trade route and networks. | **KWS/ NPS**, ODPP, DCI, WRTI, NMK | 2024-2028 | Capacity and funds to conduct investigations are available | KWS |
| Action 2:2.2.4 | Strengthen informant network and information gathering for anti-poaching operations and adopt technology to detect and deter wildlife crime | High | 50,000 | No. of reports | Informant based reports | **KWS/ TPP,** WRTI, NMK, conservancies, NGOs, KWCA, NRT, AWF, WWF | 2024-2028 | Availability of funding | KWS |
| **Output 2:2.3: Enhanced awareness among law enforcement officers on pangolin (e.g., conservation needs, treatment)** | | | | | | | | | |
| Action 2:2.3.1 | Undertake training needs assessment and develop of training materials | High | 31,000 | Training needs of targeted stakeholders and number and types of materials | Training needs assessment report, Training materials | **KWS,** WRTI, NMK, County Governments, communities, KWCA, FFI, TPP, APWG | 2024 | Availability of funds | Technical Steering Committee |

| OUTCOME 2:2 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:2 Enhanced capacity of law enforcement agencies to reduce illegal trade in pangolins and their body parts | | | | Percentage of officers with capacity to detect pangolins and their products in trade demonstrate application of techniques in entry/ exit points in Kenya throughout implementation of plan. | | | | Assumption: displacement to other trade routes and changes in concealment techniques are detected | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:2.3: Enhanced awareness among law enforcement officers on pangolin (e.g., conservation needs, treatment)** | | | | | | | | | |
| Action 2:2.3.2 | Localized trainings and workshops for law enforcement officers in pangolin hotspot areas | High | 35,000 | Sufficient understanding among law enforcement officers on pangolins, conservation needs, improved output on seizures and arrests, handling of live pangolins, reduced pangolin poaching and trafficking, higher sentences on those that go to court | Training reports and ToT manuals, seizure reports, court outcomes, judgments and convictions, increasing number of pangolins within their habitat | **KWS,** customs and border point personnel, county governments ODPP, Judiciary, WRTI, NMK, local community conservancies, TPP, APWG | 2024-2027 | Officers available to train and receptive to new training, Availability of funds and other resources | KWS, NMK, WRTI |
| **Output 2:2.4: Poaching and trading hotspots are prioritized for surveillance and confiscations by end of 2024 but on-going** | | | | | | | | | |
| Action 2:2.4.1 | Use information from database and SO1 to prioritize poaching and trading hotspot areas where surveillance is needed by 2025 but remains on-going | High | N/A Desktop | Routes and Hotspot areas mapped out in live platform | Coordinates of hotspot areas, poaching data, confiscation and seizures, cases reported by community | **KWS,** County Governments, CAK, KWCA, Communities | 2024-2027 | Availability of data, willingness of community to report, surveillance equipment is available | KWS |

| OUTCOME 2:2 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:2 Enhanced capacity of law enforcement agencies to reduce illegal trade in pangolins and their body parts | | | | Percentage of officers with capacity to detect pangolins and their products in trade demonstrate application of techniques in entry/ exit points in Kenya throughout implementation of plan. | | | | Assumption: displacement to other trade routes and changes in concealment techniques are detected | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:2.4: Poaching and trading hotspots are prioritized for surveillance and confiscations by end of 2024 but on-going** | | | | | | | | | |
| Action 2:2.4.2 | Conduct training on criminology approaches (e.g. situational crime prevention) to tackle poaching of pangolins | Medium | 15,000 | Training reports and crime scripts detailing pangolin poaching chain of events in at least two pangolin landscapes | Reports and crime scripts developed with recommen-dations for a strategy | **FFI,** TPP, County Governments | 2024-2027 | Availability of resources, enforcement agencies are receptive to exploring different methodologies that steer away from traditional law enforcement | KWS |

| OUTCOME 2:3 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:3 Kenya no longer acts as transit point for illegal pangolin shipments originating from Kenya or elsewhere in the continent | | | | Number of officers trained at key entry/exit ports; an increase, followed by a decrease, of seizures of pangolins and pangolin products in locations where training was received (compared to 2023 seizure baseline); interviews with officers at various ports and with agencies (e.g., INTERPOL) with a broader sense of shifts in regional trade trends demonstrate a decrease of trafficking through Kenya | | | | Assumption: trade currently taking place undetected; so as a result of increased efforts, seizures would increase in the next 5 years and then decrease due to capacity. Difficulties with relying solely on numbers of seizures as a sign of decrease in international trade are noted | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:3.1: Capacity building at key airports, harbor ports and on-land exit border points on pangolin identification, laws protecting pangolins, handling evidence and seizure reporting** | | | | | | | | | |
| Action 2:3.1.1 | Incorporate existing, established morphological and molecular protocols for identification to species of pangolin scales and other products into Kenyan wildlife forensic protocols | High | 250,000 | Guidelines on pangolin ID from scales developed in an accessible format and availed at different ports and border crossing points, DNA barcoding method available with training | Existing guidelines on identification of the 3 pangolin species from their scales: existing manual produced by USAID | **NMK/WRTI/ KWS,** Customs, National Police Service (NPS), Kenya Ports and Airports Authority, IUCN-PSG, FFI, TPP, TRAFFIC, WWF, APWG, SA BioBank and SANBI | 2024 | Availability of funds, collaboration, goodwill between organizations | KWS |
| Action 2:3.1.2 | Collaborate with global initiatives using molecular methods (DNA, stable isotopes, and/or trace elements) to identify geographic sources of pangolin products seized in Kenya | High | 30,000 | No. of methods employed in-country to identify origin of seized pangolin products | Trainings delivered and equipment secured in-country to apply methods | **KWS/WRTI/ NMK,** Customs, Kenya Ports and Airports Authority, IUCN-PSG | 2025 | Funds available, global experts available to deliver training | KWS |
| Action 2:3.1.3 | Use (and adapt if necessary) existing manual for pangolin species identification by mid-2024 | High | 30,000 | Manual produced in accessible format and received at different ports and border crossing points. | Manuals on identification of the 3 Kenyan pangolins - existing manual produced by USAID | **NMK/WRTI/ KWS,** Customs, NPS, Kenya Ports and Airports Authority, IUCN-PSG, FFI, TPP, TRAFFIC, WWF | 2024 | Funds available to produce materials | WRTI |

| OUTCOME 2:3 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:3 Kenya no longer acts as transit point for illegal pangolin shipments originating from Kenya or elsewhere in the continent | | | | Number of officers trained at key entry/exit ports; an increase, followed by a decrease, of seizures of pangolins and pangolin products in locations where training was received (compared to 2023 seizure baseline); interviews with officers at various ports and with agencies (e.g., INTERPOL) with a broader sense of shifts in regional trade trends demonstrate a decrease of trafficking through Kenya | | | | Assumption: trade currently taking place undetected; so as a result of increased efforts, seizures would increase in the next 5 years and then decrease due to capacity. Difficulties with relying solely on numbers of seizures as a sign of decrease in international trade are noted | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:3.1: Capacity building at key airports, harbor ports and on-land exit border points on pangolin identification, laws protecting pangolins, handling evidence and seizure reporting** | | | | | | | | | |
| Action 2:3.1.4 | Develop protocols to search for, detect and seize pangolins and their body parts by mid-2024 | High | 15,000 | Protocols to detect and search for pangolins and their products in travelers' luggage and cargo shipments developed and received at different ports and border crossing points, Create a SOP guideline for all involved in pangolin cases handling and transport of live animals and parts to maintain chain of custody | Protocols, detection gadgets, live pangolin SOP (standard operating procedures) in place | **Customs/KWS** NMK, WRTI, NPS, Kenya Ports and Airports Authority, IUCN PSG, FFI, TPP, TRAFFIC, WWF, APWG | 2024 | Funds available to procure detectors | KWS, Customs |
| Action 2:3.1.5 | Deploy pangolin screening equipment and sniffer dogs by end of 2024 | Medium | 450,000 | Equipment and sniffer dogs working effectively at ports/ border crossings, Updated screening programs for pangolin contraband being designed | No. of ports and border points with screening equipment and sniffer dogs | **Customs/KWS** NMK, WRTI, NPS, Kenya Ports and Airports Authority, TRAFFIC, WWF, Ian Cruickshank (The Royal Foundation) | 2024 | Funds available to acquire equipment and dogs and to train officers in use and handling | Customs, NPS |

| OUTCOME 2:3 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:3 Kenya no longer acts as transit point for illegal pangolin shipments originating from Kenya or elsewhere in the continent | | | | Number of officers trained at key entry/exit ports; an increase, followed by a decrease, of seizures of pangolins and pangolin products in locations where training was received (compared to 2023 seizure baseline); interviews with officers at various ports and with agencies (e.g., INTERPOL) with a broader sense of shifts in regional trade trends demonstrate a decrease of trafficking through Kenya | | | | Assumption: trade currently taking place undetected; so as a result of increased efforts, seizures would increase in the next 5 years and then decrease due to capacity. Difficulties with relying solely on numbers of seizures as a sign of decrease in international trade are noted | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:3.1: Capacity building at key airports, harbor ports and on-land exit border points on pangolin identification, laws protecting pangolins, handling evidence and seizure reporting** | | | | | | | | | |
| Action 2:3.1.6 | Train officers at different airports, harbor ports and land border crossing points on pangolin identification, search/detection protocols, reporting pangolin seizures and confiscations and employment of screening equipment by end of 2024 | High | 50,000 | Training reports no. of officers trained, no. of training sessions conducted at different airports, ports and border crossing points | Training manuals, Reports and post-training evaluations | **KWS,** WRTI, NMK, Customs, NPS, Kenya Ports and Airports Authority, Border Patrol, TPP, TRAFFIC, WWF | 2024 | Availability of funds, collaboration goodwill between organizations | KWS/ Customs |
| **Output 2:3.2: Transboundary cooperation with neighboring countries enhanced by 2026 (i.e., South Sudan, Uganda, Tanzania) to share information on pangolin trafficking incidents across borders and implement specific measures at different border crossing points that act as trading routes** | | | | | | | | | |
| Action 2:3.2.1 | Stakeholder awareness creation on transboundary collaborative frameworks and associated opportunities | High | 15,000 | Number of awareness creation initiatives implemented and stakeholders reached | Reports | **KWS,** EALA, LATF, Ministry of Tourism and Wildlife NGOs | 2024-2026 | Availability of resources | KWS/GK |
| Action 2:3.2.2 | Support stakeholder participation in regional forums and meetings towards enhancing collaboration | Medium | 25,000 | Number of stakeholders participating in regional forums and meetings | Reports of forums and meetings attended | **KWS,** Ministry of Tourism and Wildlife | 2024-2026 | Sustained goodwill among partner states | KWS/GK |

| OUTCOME 2:3 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:3 Kenya no longer acts as transit point for illegal pangolin shipments originating from Kenya or elsewhere in the continent | | | | Number of officers trained at key entry/exit ports; an increase, followed by a decrease, of seizures of pangolins and pangolin products in locations where training was received (compared to 2023 seizure baseline); interviews with officers at various ports and with agencies (e.g., INTERPOL) with a broader sense of shifts in regional trade trends demonstrate a decrease of trafficking through Kenya | | | | Assumption: trade currently taking place undetected; so as a result of increased efforts, seizures would increase in the next 5 years and then decrease due to capacity. Difficulties with relying solely on numbers of seizures as a sign of decrease in international trade are noted | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:3.2: Transboundary cooperation with neighboring countries enhanced by 2026 (i.e., South Sudan, Uganda, Tanzania) to share information on pangolin trafficking incidents across borders and implement specific measures at different border crossing points that act as trading routes** | | | | | | | | | |
| Action 2:3.2.3 | Track effectiveness of mutual legal assistance agreements between countries for information and transfer of suspects' information | Medium | 10,000 | Monitoring and evaluation report | Report on effectiveness of mutual legal assistance agreement | **KWS,** Office of the Attorney General, Ministry of Tourism & Wildlife, partnering states | 2024-2028 | Other countries are able engage in the evaluation | KWS/ Ministry of Tourism & Wildlife |
| Action 2:3.2.4 | Collaboration with international agencies (e.g., INTERPOL, CITES) to share information and intelligence on pangolin and other wildlife trafficking networks | Medium | 25,000 | Responsibility of sharing information with international agencies forms part of the roles | Reports of intelligence shared, Arrests as a result of shared intelligence, dismantling of networks from shared intelligence, reduction in trafficking | **KWS,** WRTI, NMK, NPS, TRAFFIC, NPS, Law enforcement agencies in all partner states, IUCN-PSG, EAGLE, EIA, WJC, WCS, APWG, WWF | 2024-2028 | Goodwill, capacity for law enforcement and funding. frameworks will be in place to share information | KWS/NPS |

| OUTCOME 2:3 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:3 Kenya no longer acts as transit point for illegal pangolin shipments originating from Kenya or elsewhere in the continent | | | | Number of officers trained at key entry/exit ports; an increase, followed by a decrease, of seizures of pangolins and pangolin products in locations where training was received (compared to 2023 seizure baseline); interviews with officers at various ports and with agencies (e.g., INTERPOL) with a broader sense of shifts in regional trade trends demonstrate a decrease of trafficking through Kenya | | | | Assumption: trade currently taking place undetected; so as a result of increased efforts, seizures would increase in the next 5 years and then decrease due to capacity. Difficulties with relying solely on numbers of seizures as a sign of decrease in international trade are noted | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:3.3: Establish and apply strict control measures to secure, manage and monitor pangolin derivatives stockpiles** | | | | | | | | | |
| Action 2:3.3.1 | National reporting to CITES Secretariat (as per Revised Res. Conf. 17.10 adopted at CITES CoP19) of pangolin derivative stocks confiscated each year, indicating type and number of specimens, species, and source of specimens | Medium | N/A Desktop | Database of seizures is kept up to date | All required reports are submitted to CITES | **KWS,** WRTI, NMK | 2024-2028 | Availability of trophies, capacity for data entry and conducting stockpiling | KWS |
| Action 2:3.3.2 | National reporting to CITES Secretariat of any significant changes in the size of the stockpile, reason for changes and steps taken to establish and apply strict control measures to secure and monitor these stocks | Low | N/A Desktop | Database of seizures is kept up to date | All required reports are submitted to CITES | **KWS,** WRTI, NMK | 2024-2028 | Availability of trophies, capacity for data entry and conducting stockpiling | KWS |
| Action 2:3.3.3 | Undertake periodic audits of stockpile of pangolin specimens; explore emerging technologies for the permanent marking of pangolin scales (e.g., smartwater) to provide a unique ID for each seizure and develop a CITES protocol to employ these. | Low | 15,000 | Database of seizures is kept up to date | Stockpile audit schedule, Stockpile audit reports | **KWS,** WRTI, NMK, Customs | 2024-2028 | Availability of trophies, capacity for data entry and conducting stockpiling | KWS |

| OUTCOME 2:4 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:4 Process of confiscation of live pangolins during arrests is streamlined to ensure survival of rescued animals | | | | Number of confiscated live pangolin and percentage that are released as part of a monitoring program | | | | Assumptions: that all arrests of pangolin scales or live specimen lead to prosecution and that the data obtained can assist agencies assess the severity of the pangolin trade and put up mechanisms to deal with the trade | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:4.1: Protocol on how to handle live confiscated pangolins for presentation at courts as evidence is developed and implemented** | | | | | | | | | |
| Action 2:4.1.1 | Develop action plan (protocol) for the capture, rehabilitation and release of live pangolins upon arrest of suspects (including intact chain of custody, DNA sample and microchipping for evidence) | High | 15,000 | SOP for handling of live pangolins and developed process that should be followed. Number of confiscated pangolins that survive after release to the wild | Handling, treatment, and release protocols in place for post-release survival<br><br>**Note:** PSGs First Responders Guide for Seized Pangolins | **KWS/APWG,** WRTI, NMK, Conservancy Managers, TPP, IUCN-PSG, FFI, WWF | 2024-2025 | Availability of funding, Availability of existing SoPs for bench-marking | KWS |
| Action 2:4.1.2 | Training veterinarians and law enforcement officer on live pangolin handling protocol based on Action 1:4.1.1 | High | 15,000 | Veterinary training developed.<br><br>Rehabilitation training developed. | Live pangolin handling protocol and SOP, Vet/rehab training manuals on pangolins. | **KWS/APWG** WRTI, NMK, County Government, Conservancy Managers, TPP, ZSL, IUCN-PSG | 2024-2028 | Availability of funding, Availability of trainers, officers available to train and receptive to new training | KWS |
| Action 2:4.1.3 | Acquiring/securing necessary safe facilities/equipment to treat confiscated live pangolins | High | 50,000 | Create secure pangolin housing at existing, approved facilities. Create new pangolin facilities with trained staff. | Trained staff, rehabilitation facilities and equipment in place | **KWS/APWG** WRTI, NMK, County Government, TPP, IUCN-PSG | 2024-2025 | Availability of funding for medical equipment and facilities for rehabilitations and holding pangolins, capacity | KWS |

| OUTCOME 2:4 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:4 Process of confiscation of live pangolins during arrests is streamlined to ensure survival of rescued animals | | | | Number of confiscated live pangolin and percentage that are released as part of a monitoring program | | | | Assumptions: that all arrests of pangolin scales or live specimen lead to prosecution and that the data obtained can assist agencies assess the severity of the pangolin trade and put up mechanisms to deal with the trade | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:4.1: Protocol on how to handle live confiscated pangolins for presentation at courts as evidence is developed and implemented** | | | | | | | | | |
| Action 2:4.1.4 | Develop a post rescue-rehabilitation release plan, including identifying species-specific appropriate sites for pangolin release (in accordance with ecological needs) and monitoring protocol | Medium | 10,000 | Pangolin release SoP developed. Post-release protocols are adhered to | Pangolin post-release protocols and monitoring program in place, SOP in place | **KWS/APWG,** WRTI, NMK, County government, TPP, IUCN-PSG, ZS | 2024-2025 | Availability of funding to support post release pangolin monitoring | KWS |
| Action 2:4.1.5 | Carry out post release studies and monitoring of confiscated pangolins | Medium | 83,500 | Report and data | Published data | **WRTI, NMK, KWS**, Universities, TPP, FFI, TBA, WW, IUCN-PSG | Year 1-5 | Funds availability, institutional collaborations | Technical steering Committee |
| **Output 2:4.2 Arrests of offenders of pangolin crimes, and the subsequent investigation and confiscation of live pangolins, are documented and monitored in a baseline** | | | | | | | | | |
| Action 2:4.2.1 | Develop and implement an agreed time sensitive protocol on live pangolin exhibit management by officers along the law enforcement chain based on Action 1:4.1.1 | High | 15,000 | Pangolin exhibit management protocol developed | Protocol in place and being used | **KWS,** WRTI, NMK | Develo-pment 2024<br><br>Imple-mentation 2024-2028 | Availability of funding to develop the protocol; support from other law enforcement agencies | KWS, NMK, WRTI |

| OUTCOME 2:4 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 2:4 Process of confiscation of live pangolins during arrests is streamlined to ensure survival of rescued animals | | | | Number of confiscated live pangolin and percentage that are released as part of a monitoring program | | | | Assumptions: that all arrests of pangolin scales or live specimen lead to prosecution and that the data obtained can assist agencies assess the severity of the pangolin trade and put up mechanisms to deal with the trade | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 2:4.2 Arrests of offenders of pangolin crimes, and the subsequent investigation and confiscation of live pangolins, are documented and monitored in a baseline** | | | | | | | | | |
| Action 2:4.2.2 | Sensitize law enforcement officers along the enforcement and prosecution chain on the live pangolin exhibit management protocol | High | 25,000 | Sensitization workshops held | No. of officers sensitized | **KWS,** WRTI, NMK | 2024-2025 then on a need basis | Availability of funding to develop the protocol; support from other law enforcement agencies, availability of personnel to be trained | KWS, NMK, WRTI |
| Action 2:4.2.3 | Establish a baseline on arrests, investigations and concluded cases relating to pangolin poaching and trade | High | 4,500 | Baseline data available on arrests that have led to prosecutions whether successful or not | Report of seizures, court outcome on convictions, data on prosecuted cases | **KWS, ODPP, NMK** | 2024-2026 | Data is available; support from other law enforcement agencies, successful prosecution of offenders | KWS |
| Action 2:4.2.4 | Monitor the cases relating to pangolin poaching and trade against the established baseline | High | 4,500 | Percentages against the established baseline | Report surveys done | **KWS,** WRTI, NMK, TPP, IUCN-PSG | 2024-2028 | Data is available; support from law enforcement agencies | KWS |
| Action 2:4.2.5 | Establish the number of confiscated live pangolins successfully released as part of a monitoring program | High | 5,500 | Number of individuals successfully released | Release reports | **KWS,** WRTI, NMK, TPP | 2024-2028 | Live pangolins released | KWS, NMK, WRTI |

## Strategic Objective 3: Ensure habitats suitable for the survival of pangolins in Kenya are secured and well managed

**Rationale:** Since pangolins have been commonly reported outside protected areas, it is crucial to map all potential stronghold sites within and outside protected areas. For pangolin strongholds outside protected areas, site-specific management plans will be formulated in collaboration with respective counties and community landowners to address threats detrimental to pangolin survival. Impacts of existing and upcoming road development will be studied and provisions for wildlife corridors provided as mitigation measures. Where feasible, habitat restoration will be undertaken to enhance availability of keystone habitat features such as food resources (such as termite mounds) and roosting sites (burrows and tree holes).

## Priority Project for SO3

- Establish secure management of pangolin range areas
- Mitigate known threats to pangolin habitats.
- Modify electric fences in pangolin habitats to reduce impact on pangolins

| OUTCOME 3:1 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 3:1 Pangolin habitats are effectively secured and managed | | | | Number of hectares (of suitable habitat) with protection status / management plan / under restoration by project end. | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 3:1.1: Incorporate pangolin-specific measures into existing protected area management plans where they exist** | | | | | | | | | |
| Action 3:1.1.1 | Identify existing protected area management plans in confirmed pangolin habitat and develop and implement measures for pangolin habitat within protected areas | Medium | 30,000 | No. of existing management plans including pangolin-specific measures | No. of existing management plans including pangolin-specific measures Management plans for key sites in place | **KWS,** WRTI, NMK, county Government, conservancies, TPP, NRT, FFI, IUCN-PSG, WWF | Year 3-5 | Availability of funds | Technical committee |
| Action 3:1.1.2 | Where protected area management plans do not exist in pangolin range areas (such as outside of protected areas), develop and implement site-specific pangolin measures | High | 83,000 | No. of site management plans including pangolin-specific measures | Management plans for key sites in place | **KWS,** WRTI, NMK, county government, conservancies, TPP, NRT, FFI, IUCN-PSG, WWF | Year 3-5 | Availability of funds | Technical committee |
| **Output 3:1.2: Deploy enforcement officers and conservancy scouts to key pangolin habitats and facilitate collaboration of these units with pangolin monitoring and research initiatives** | | | | | | | | | |
| Action 3:1.2.1 | Deployment of enforcement officers and conservancy scouts to key pangolin habitats | High | 25,000 (Institut-ional deploy-ment) | No. of officers deployed | Duty station / employment records | **KWS,** WRTI, NMK, county government, conservancies, TPP, NRT, FFI, IUCN-PSG, WWF | Year 2 - 5 | Availability of funds | KWS |
| Action 3:1.2.2 | Law enforcement agencies collaborate with pangolin monitoring and research initiatives. | High | 15,000 | No. of collaborations between researchers and law enforcers | Reports that demonstrate collaboration between researchers and law enforcers | **KWS,** KFS, WRTI, NMK, NPS, conservancies, county government, Funding agencies | Year 2 - 5 | Availability of funds. Enabling environment for research & law enforcement collaboration | KWS |

| OUTCOME 3:1 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 3:1 Pangolin habitats are effectively secured and managed | | | | Number of hectares (of suitable habitat) with protection status / management plan / under restoration by project end. | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 3:1.3: Restoration of degraded pangolin habitats** | | | | | | | | | |
| Action 3:1.3.1 | Develop and implement site-specific plans for pangolin strongholds outside Protected Areas | Medium | 60,000 | No. of site management plans for specific sites | Management plans for key sites in place | **KWS, KFS,** WRTI, NMK, county Government, Conservancies, TPP, NRT, FFI | Year 3-5 | Availability of funds | Technical committee |
| Action 3:1.3.2 | Engage and build capacity among communities to improve and restore pangolin habitats | High | 20,000 | No. of meetings/ trainings conducted | Minutes of meeting, participant list | **KWS,** WRTI, NMK, KFS, County Governments, Conservancies, FFI, TPP | Year 1 - 3 | Availability of funds, community willingness to participate | KWS |
| Action 3:1.3.3 | Provide incentives to landowners to monitor pangolins and conserve their habitats | Medium | 50,000 | No. of agreements developed | MoUs, meeting minutes | **KWS,** WRTI, NMK, County Governments, Conservancies, FFI, TPP | Year 3 - 5 | Willingness of landowners to participate | KWS |
| Action 3:1.3.4 | Ensure that there is a legal framework at County and National level to protect pangolin habitats (inside and outside protected areas) | High | N/A | Legal frameworks available in all Counties where pangolins have been confirmed or are suspected to be present | Meeting records, MoUs | **KWS,** County governments, conservancies, NGOs, AWF, WWF, FFI | Year 2 - 5 | Availability of funds, support from relevant law enforcement agencies and County Governments | KWS |
| Action 3:1.3.5 | Involve communities in monitoring of pangolins and their habitats, incorporating indigenous knowledge | High | 20,000 | No. of groups formed | No. of active groups | **KWS, TPP,** WRTI, NMK, Conservancies, KWCA, FFI, AWF, WWF, NK, other NGOs | Year 2 - 5 | Willingness of communities to participate | KWS |

| OUTCOME 3:2 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 3:2 Threats to pangolins and pangolin habitats reduced | | | | Annual sales of pesticides and insecticides reduced. Annual roadkill and fencing mortalities reduced. Annual incidences of bushfires in suitable pangolin habitat reduced. All by project end. | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 3:2.1: Use of pesticides and insecticides reduced** | | | | | | | | | |
| Action 3:2.1.1 | Encourage use of alternative products among communities adjacent to identified pangolin habitats | Medium | N/A | Increased use of alternative products | Reports | **KWS,** WRTI, NMK, TPP, NRT | Year 2 - 5 | Availability of alternatives and willingness from communities | KWS |
| **Output 3:2.2: Mortalities due to habitat modification and fragmentation resulting from development projects (e.g. road/rail development, fences, etc.) are reduced** | | | | | | | | | |
| Action 3:2.2.1 | Avail relevant data to inform designing of roads/rail development projects in pangolin range areas that allow safe movement of pangolins at appropriate points by installation of culverts and/or underpasses | High | 30,000 | No. of pangolin roadkill incidents compared to baseline from SO1 | Survey reports | **NEMA, WRTI,** KWS, NRT, TPP, NGOs, Funding agencies | Year 1 - 5 | Availability of funds, Compliance with EMCA requirements on EIA | KWS |
| Action 3:2.2.2 | Sensitize landowners on effects of fences on pangolins, and encourage them to construct fences that allow safe passage of pangolins | Medium | 20,000 | Reduced electrocution | Data available | KWS, WRTI, NMK, TPP, FFI, NRT, IUCN-PSG, NGOs, Funding agencies | Year 1 - 5 | Cooperation from landowners, availability of funds | KWS |
| Action 3:2.2.3 | Provide incentives for landowners for changing fences to accommodate pangolins | Low | 100,000 | Presence of pangolin friendly fences | Land demarcation maps | **KWS,** County Government, Conservancies | Year 1 - 5 | Cooperation from landowners, availability of funds | KWS |

| OUTCOME 3:2 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 3:2 Threats to pangolins and pangolin habitats reduced | | | | Annual sales of pesticides and insecticides reduced. Annual roadkill and fencing mortalities reduced. Annual incidences of bushfires in suitable pangolin habitat reduced. All by project end. | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 3:2.3: Risk of unplanned bushfires in pangolin habitat mitigated** | | | | | | | | | |
| Action 3:2.3.1 | Create fire breaks in pangolin habitats to control spread of fire in known risk areas | Medium | 50,000 | Reduced incidences of fire | No. of fire breaks created | **KWS,** KFS, Conservancies, NGOs | Year 2 - 5 | Availability of funds | KWS, KFS |

| OUTCOME 3:3 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 3:3 Protocols for monitoring pangolin habitat status and quality developed | | | | Protocols produced by end of year 1; number of sites assessed under protocols each year | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 3:3.1: Effective pangolin habitat monitoring protocol** | | | | | | | | | |
| Action 3:3.1.1 | Host a workshop with relevant technical personnel to understand pangolin habitat requirements, also incorporating indigenous knowledge | Medium | 45,000 | Workshop proceedings | Report | **KWS,** WRTI, KFS, Research institutions, Universities, TPP, FFI, WW, TBA, IUCN-PSG | Year 2 | Availability of funds | KWS |
| Action 3:3.1.2 | Develop a pangolin specific habitat monitoring protocol | Medium | 15,000 | Protocol developed | Protocols in place | **KWS,** WRTI, NMK, TPP, IUCN-PSG, WW, TBA | Year 1 | Appropriate expertise and participants available | KWS |

## Strategic Objective 4: Enhance awareness and build capacity among wildlife law enforcement, local communities and other relevant stakeholders

**Rationale:** Despite being rare and unfamiliar to many, pangolins are widely distributed in diverse habitats including areas in close proximity to human settlements. It is therefore crucial to engage local people in conserving the species and their habitats, as well as assisting to control illegal poaching and trade. This requires adequate awareness and information sharing with local communities, wildlife law enforcement agencies and the general public, enlightening them on the plight and importance of pangolins as well as the ongoing national conservation efforts, in order for them to actively contribute to the process. This action plan identifies strategies for developing local stewardship among communities neighboring or within pangolin range areas in collaboration with local leaders.

## Priority project for SO4

- Develop and implement public awareness plan on pangolins
- Develop and implement strategy to disseminate Action Plan to stakeholders

| OUTCOME 4:1 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 4:1 Public awareness on pangolins is enhanced | | | | Number and percentage of members of public (disaggregated by stakeholder group and gender) demonstrating enhanced awareness of pangolins by project end against Y1 baseline | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 4:1.1: Public participates in pangolin conservation activities** | | | | | | | | | |
| Action 4:1.1.1 | Develop awareness creation plan targeting local communities | High | 5,000 | Pangolin capacity building and awareness creation plan | Electronic or print plan | **KWS & TSC,** WRTI, NMK, WCK, County governments, Ministry of Education, communities, FFI, TPP, NRT, IUCN-PSG, APWG, Media | 2024 | Availability of funding | Technical steering Committee |
| Action 4:1.1.2 | Developing pro-pangolin conservation materials including brochures, posters, fliers, fact sheets, billboards, newsletters, magazines etc. | Medium | 45,000 | Types and numbers of materials developed and disseminated | Copies of materials developed and shared | **WRTI, NMK,** KWS, County Governments, WCK, Communities, FFI, TPP, APWG, IUCN-PSG | 2024-2028 | Availability of funds | Technical steering Committee |
| Action 4:1.1.3 | Conduct awareness/public outreach and education campaigns on conservation values, threats, roles/actions and laws regarding pangolins in Kenya through public meetings/ barazas and media (esp. vernacular radio stations) and other means | High | 69,000 | Awareness creation initiatives | Media features, minutes and reports | **NMK, KWS, WRTI, TPP, WCK,** County Governments, Universities, Communities, FFI, TPP, NRT, IUCN-PSG, APWG, NK | 2024-2028 | Availability of funding and political and community goodwill | Technical steering Committee |
| Action 4:1.1.4 | Develop school/learning institutions outreach programs on pangolin identification, ecological importance and threats, including school wildlife clubs in range areas | Medium | 31,000 | Schools and learning institutions visited | Reports | **KWS, WRTI, NMK, WCK,** County governments, Ministry of Education, FFI, TPP, APWG, IUCN-PSG | 2024-2028 | Availability of funds and good will from Ministry of Education | Technical steering Committee |

| OUTCOME 4:1 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 4:1 Public awareness on pangolins is enhanced | | | | Number and percentage of members of public (disaggregated by stakeholder group and gender) demonstrating enhanced awareness of pangolins by project end against Y1 baseline | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 4:1.1: Public participates in pangolin conservation activities** | | | | | | | | | |
| Action 4:1.15 | Commemorate World Pangolin Day nationally and in range areas annually to create awareness among stakeholders using sports and other events (marathons, football etc.) | Medium | 42,600 | Events organized nationally and regionally during World Pangolin Day | Media features, minutes and reports | **KWS,** WRTI, NMK, County governments, Ministry of Tourism and Wildlife, communities, FFI | 2024-2028 | Good will among pangolin stakeholders. Availability of funds | **Technical steering Committee** |

| OUTCOME 4:2 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 4:2 Capacity of pangolin conservation among stakeholders enhanced. | | | | Number and percentage of pangolin stakeholders (disaggregated by stakeholder group and gender) demonstrating increased capacity to deliver pangolin conservation by project end against Y1 baseline needs assessment | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 4:2.1: Stakeholders trained on Pangolin conservation** | | | | | | | | | |
| Action 4:2.1.1 | Publicize the National Recovery and Action Plan for Pangolins in Kenya among stakeholders and local communities | High | 15,000 | Number of publicity initiatives | Media features, minutes and reports | **KWS,** WRTI, NMK, County governments, communities, FFI, TPP, NRT, NK, IUCN-PSG | 2024-2025 | Availability of funding, political goodwill | Technical steering Committee |

| OUTCOME 4:2 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 4:2 Capacity of pangolin conservation among stakeholders enhanced. | | | | Number and percentage of pangolin stakeholders (disaggregated by stakeholder group and gender) demonstrating increased capacity to deliver pangolin conservation by project end against Y1 baseline needs assessment | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 4:2.1: Stakeholders trained on Pangolin conservation** | | | | | | | | | |
| Action 4:2.1.1 | Publicize the National Recovery and Action Plan for Pangolins in Kenya among stakeholders and local communities | High | 15,000 | Number of publicity initiatives | Media features, minutes and reports | **KWS,** WRTI, NMK, County governments, communities, FFI, TPP, NRT, NK, IUCN-PSG | 2024-2025 | Availability of funding, political goodwill | Technical steering Committee |
| Action 4:2.1.2 | Organize regular meetings at local, county and national level for sharing information on pangolin conservation and anti-poaching activities/strategies | Medium | 80,000 | No. of meetings conducted | Minutes of meeting and list of participants | **KWS, TPP,** County Government, KWCA, FFI, TPP, NRT, IUCN-PSG, APWG, NK AWF, WWF, other NGOs | Year 1 – 5 | Availability of funding | Technical steering Committee |
| Action 4:2.1.3 | Identify, train and equip local community pangolin ambassadors (or champions and stewards) in areas where pangolins occur for the species conservation work | High | 60,000 | Number of pangolin champions nominated, trained and equipped | List of nominees, reports | **KWS,** WRTI, NMK, County governments, communities, KWCA, FFI, TPP, IUCN-PSG, APWG | 2024-2026 | Availability of funds and community goodwill | Technical steering Committee |
| Action 4:2.1.4 | Sensitize stakeholders on poaching & illegal trade hotspots, appropriate handling of live exhibits and identification of pangolin derivatives | High | 41,700 | Number of pangolin champions nominated, trained and equipped | Reports, media features | **KWS,** WRTI, NMK, County governments, FFI | 2024-2028 | Funds and willingness of stakeholders to engage | Technical steering Committee |
| Action 4:2.1.5 | Develop and disseminate best practices guidelines for communities to coexist with pangolins e.g. discourage use of harmful pesticides and insecticides | Medium | 40,000 | Best practice guidelines developed | Guide/manual on best practice | **NMK, TPP, WRTI, KWS,** Ministry of Agriculture, County governments, communities FFI, TPP, IUCN-PSG, APWG | 2024-2028 | Availability of funds and Community goodwill | Technical steering Committee |

| OUTCOME 4:3 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 4:3 Pangolin matters prioritized in stakeholders' agenda | | | | Number of published formal documents (annual plans, best practice guidelines) that include or relate to pangolin conservation matters by project end | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 4:2.1: Stakeholders trained on Pangolin conservation** | | | | | | | | | |
| Action 4:3.1.1 | Lobby National and County governments, among other stakeholders, to mainstream pangolin conservation matters in their annual plans | Medium | 23,000 | Number of lobbying initiatives | Reports, county plans and budgets | **KWS,** WRTI, NMK, County governments, Ministry of Education, FFI, IUCN-PSG | 2024-2028 | National & County Government goodwill | Technical steering Committee |
| Action 4:3.1.2 | Lobby relevant agencies to develop guidelines for safe use of pesticides and insecticides within pangolin range area | High | 3,800 | Guideline document | Guideline document and reports on promotional initiatives | Pest Products Control Board (PPCB), NEMA, WRTI, KWS, NMK, Ministry of agriculture, FFI, TPP, IUCN-PSG | 2024-2025 | Funding, Capacity of PPCB to engage stakeholders | NEMA |

## Strategic Objective 5: Mobilize adequate resources to implement the activities in the plan

**Rationale:** Implementing this action plan will require both financial and human resources. This can be realized through active fund raising and harmonious collaborative synergies between stakeholders. Increased capacity for law enforcement agencies, PA managers, community conservancies, county staff and local communities in Kenya will immensely contribute to pangolin conservation and protection in range areas.

## Priority project for SO5

- Collective fundraising to raise the total budget detailed in Chapter 6 of this Plan throughout the duration of this Plan 2024 – 2028

| OUTCOME 5:1 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 5:1 Adequate resources are made available for effective implementation of actions | | | | Amount of money mobilised by the plan activities each year 5 | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 5:1.1: Establish a sustainable financial resource base to support implementation of the National Recovery and Action Plan for Pangolins in Kenya** | | | | | | | | | |
| Action 5:1.1.1 | Make budgetary provisions within institutional work plans for pangolin conservation, research, rescue, monitoring, etc. | High | - | Number of lobbying initiatives | Reports, county plans and budgets | **KWS,** WRTI, NMK, County governments, Ministry of Education, FFI, IUCN-PSG | 2024-2028 | National & County Government goodwill | Technical steering Committee |
| Action 5:1.1.2 | Identify potential donors, stakeholders and strategic partners who can fund specific activities | Medium | N/A | A list of potential donors with interest in supporting pangolin conservation | list of Donors | **KWS**, WRTI, NMK, Ministry of Tourism and Wildlife, TPP, IUCN-PSG | Year 1 | Economic contractions post Covid-19 | Technical Steering Committee |
| Action 5:1.1.3 | Develop proposals for funding to support pangolin conservation and research activities | Medium | N/A | Proposals developed and funded | Accepted funding proposals | **ALL,** KWS, WRTI, NMK, KFS, Ministry of Tourism and Wildlife, CGs, TPP, NRT, IUCN-PSG | Year 1 -Year 5 | Limiting legislation, political will | Policy Advisory Committee |
| Action 5:1.1.4 | Lobby national and county governments to give adequate priority to the conservation of pangolins by providing annual budgetary allocation | High | N/A | Proposals presented during budgeting process | Budget proposals | **KWS,** WRTI, NMK, KFS, Ministry of Tourism and Wildlife | Year 1 -Year 5 | Limiting legislation, political will | Policy Advisory Committee |
| **Output 5:1.2: Innovative funding mechanism are developed e.g. documentaries, carbon financing** | | | | | | | | | |
| Action 5:1.2.1 | Developing innovative products using pangolins for resource mobilization e.g. documentaries, digital assets, Non-Fungible Tokens (NFTs) etc. | High | 5,000 | Campaign materials developed | Promotional materials, signed funding agreements | **KWS, WRTI, KFS,** SDW, Ministry of Tourism and Wildlife, CoG, County Governments, IUCN-PSG | Year 1 -Year 5 | Competition for limited resources<br><br>Limited legislative framework | Technical Steering Committee |

## Strategic Objective 6: Enhance Coordination and Collaboration in Implementation of the Action Plan

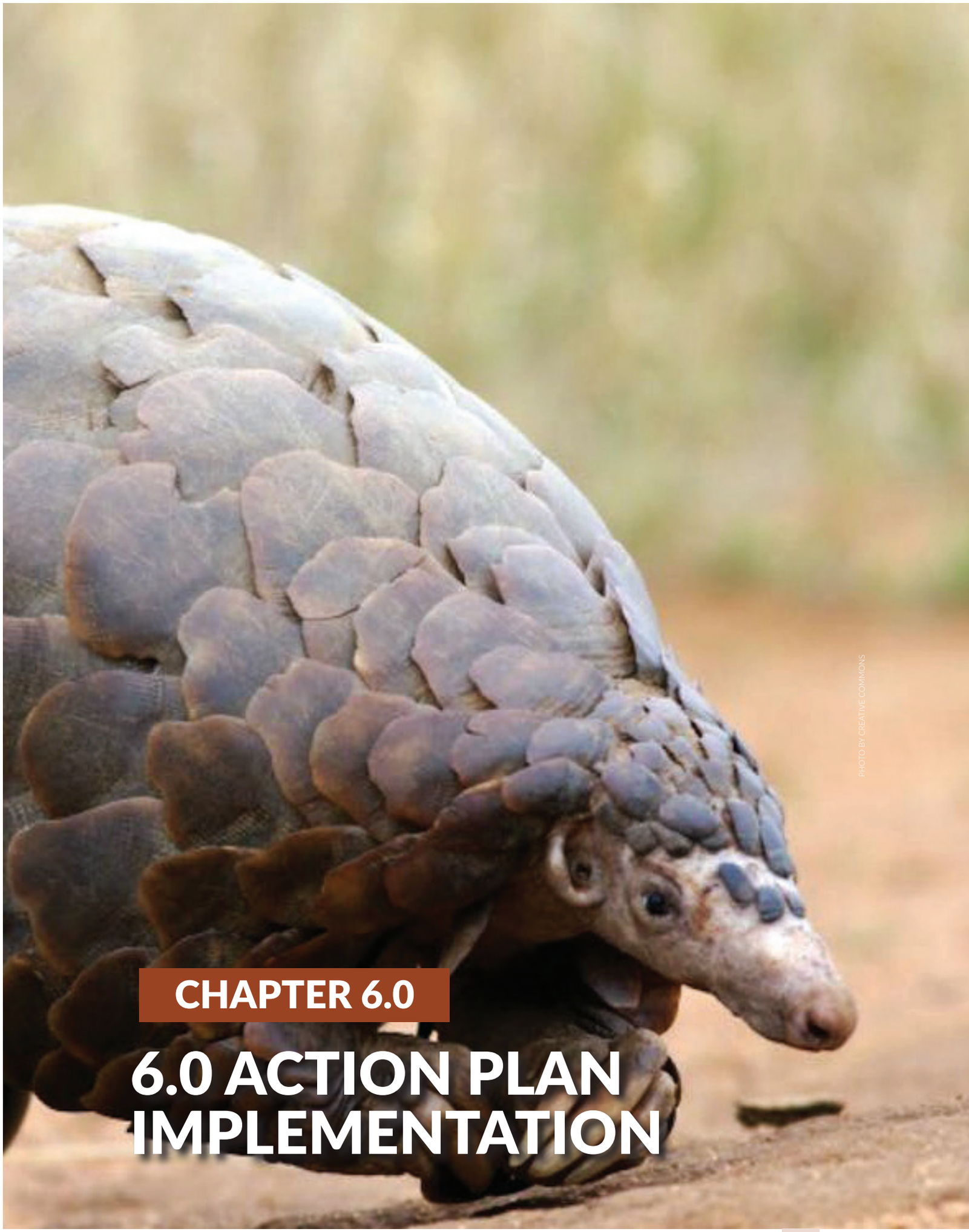
**Rationale:** Implementing this action plan will require the identification and effective involvement of different stakeholders through a well-coordinated framework.

## Priority projects for SO6

- Establish functional national and site committees with representation of stakeholders with clear terms of reference

| OUTCOME 6:1 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 6:1 Functional regional, technical and advisory committees in place | | | | Number of and percentage of stakeholders effectively involved in the implementation of the Action Plan at the end of each year<br>Number and percentage of committees established that are still active by end of each year (disaggregated by regional, technical and advisory) | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 6:1.1: Relevant stakeholders identified and effectively involved in the implementation of the Action Plan hrough a well-coordinated framework** | | | | | | | | | |
| Action 6:1.1.1 | Establish national and site committees with representation of stakeholders | High | 25,000 | Existence of active committees | Minutes of meetings | **KWS,** NMK, WRTI, FF, TPP, WWF, IUCN-PSG, TRAFFIC | Start of Year 1 | Funding | KWS |
| Action 6:1.1.2 | Establish local committees to oversee implementation of the action plan in pangolin hotspots outside protected areas | Medium | 20,800 | No. of committees established | Committee meeting minutes | **KWS,** WRTI, NMK, TPP, conservancies NGOs, funding agencies | Year 1 - 2 | Availability of funds, receptive local Communities | KWS |
| Action 6:1.1.3 | Develop clear terms of references for the committees | High | 900 | ToRs developed | ToR documents for different committees | **KWS,** NMK, WRTI, FFI, WWF, IUCN-PSG, TRAFFIC | Start of Year 1 | N/A | KWS |
| Action 6:1.1.4 | Hold national and regional committee meetings as per ToRs | Medium | 50,000 | Number of successful meetings | Meeting minutes/ proceedings | **KWS,** NMK, WRTI, County Government, Judiciary, NPS, universities, Communities, FFI, TPP, NRT, WWF, IUCN-PSG, TRAFFIC | Annually | Funding | KWS |
| Action 6:1.1.5 | Establish a Secretariat to support Pangolin Action Plan implementation coordination | High | 8,400 | Functional Secretariat in place | Physical operational office | **KWS,** NMK, WRTI, FFI, TPP | Year 1 | Funding, Staff Time | KWS |
| Action 6:1.1.6 | Support development and implementation of site action plans | Medium | Covered under SO 2 Action 2.3.1 above | At least one Site Action Plan in each of the five regions developed | Action Plan documents | **KWS,** NMK, WRTI, County Government, Judiciary, NPS, universities, Communities, FF, TPP, NRT, WWF, IUCN-PSG, TRAFFIC | End of Year 3 | Funding | KWS |

| OUTCOME 6:2 | | | | INDICATOR | | | | ASSUMPTIONS | |
|---|---|---|---|---|---|---|---|---|---|
| 6:2 Collaboration between stakeholders strengthened | | | | Number of joint projects or initiatives undertaken by stakeholders each year | | | | | |
| | | **Priority (Low, Medium, High)** | **Budget USD** | **Indicator** | **Means of Verification** | **Key stakeholders** (lead agency written in **BOLD**) | **Time frame** | **Assumptions** | **Evaluating party** |
| **Output 6:2.1: Enhanced stakeholder collaboration** | | | | | | | | | |
| Action 6:2.1.1 | Identify areas of mutual collaboration between respective institutions | Medium | 17,000 | Inter-institutional meetings/ waorkshops | Meeting proceedings | **KWS,** NMK, WRTI, County Government, Judiciary, NPS, universities, communities, FFI, TPP, WWF, IUCN-PSG, TRAFFIC | End of Year 1 | Funding, Conflicting Policies | KWS |
| Action 6:2.1.2 | Develop and implement institutional work plans | Medium | N/A | Pangolin conservation activities included in institutional work plans | Institutional annual work plans | **KWS,** NMK, WRTI, County Government, Judiciary, NPS, Universities, communities, FFI, TPP, WWF, IUCN-PSG, TRAFFIC | End of Year 1 | Institutional Priorities | KWS |
| Action 6:2.1.3 | Hold stakeholder workshops and meetings on a need basis | Low | 20,800 | Successful Workshops | Proceedings of Workshops | **KWS,** NMK, WRTI, County Government, Judiciary, NPS, universities, communities, FFI, TPP, WWF, IUCN-PSG, TRAFFIC | Annually | Funding | KWS |
| Action 6:3.1.1 | Develop an information sharing mechanism among stakeholders | Medium | 4,170 | Stakeholders' meetings | Minutes of the meetings | **KWS,** NMK, WRTI, County Government, Judiciary, NPS, universities, communities, FFI, TPP, WWF, IUCN-PSG, TRAFFIC | Start of Year 2 | Scanty information | KWS |
| Action 6:3.1.2 | Hold pangolin conferences to provide a platform for information sharing in national, regional and global forums | Medium | 41,700 | Number of conferences held | Proceedings of conferences and Publications | **WRTI,** NMK, WRTI, County Government, Judiciary, NPS, universities, communities, FFI, TPP, WWF, IUCN-PSG, TRAFFIC | Biannual | Funding | KWS |



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CHAPTER 6.0

# 6.0 ACTION PLAN IMPLEMENTATION

## 6.1 Coordination and collaboration

### Kenya Wildlife Service (KWS)

KWS is the overall implementing authority and will monitor and coordinate actions laid out in this National Recovery and Action Plan for Pangolins in Kenya. The ultimate oversight of the action plan will be the responsibility of the Director General (DG) and Assistant Director (AD)–Species Conservation. A pangolin liaison officer employed by KWS will be responsible for coordinating the implementation of the action plan and provide the conduit through which information from the TSC will flow to KWS management.

### Pangolin Technical Committee (PTC)

The existing Technical Steering Committee (TSC) will be reconstituted into a Pangolin Technical Committee (PTC), composed of pangolin experts and researchers, veterinarians, community representatives, conservancy and ranch owners, NGO representatives and managers of national parks and forest reserves. The committee will be responsible for aiding KWS to implement the National Recovery and Action Plan and providing technical oversight. The Pangolin Technical Committee will be chaired by the Deputy Director-Conservation Science and will meet at least twice (bi-annually) per year as part of monitoring and evaluation processes.

### Pangolin Range Committees (PRC)

At the site level, Pangolin Range Committees (PRCs) will be established to articulate the needs of each pangolin species. The Range Committees will also be tasked with the responsibility of coordinating the implementation of the aspects of the National Recovery and Action Plan touching on their species of interest. The Range Committees will be composed of the respective Area KWS Senior Assistant Director (SAD) – Chair), Area WRTI Senior Research Scientist (Senior Research Scientist-SRS) – Secretary, community representatives, NGO or civil society representatives, research institutions and other relevant stakeholders. Table 6 below outlines specific sites covered under various pangolin range areas. In the event that pangolin populations are found outside of the regions covered by Range Committees, existing Committees will expand to incorporate newly-identified pangolin range areas.

### Plan Implementation Structure

Kenya Wildlife Service will act as the secretariat; KWS Conservation Science Division, in liaison with the Pangolin Technical Committee (PTC), will be in charge of overseeing the implementation of the action plan, coordinating the range committees and the PTC and centralizing information from all over the country. While KWS is the government agency responsible for implementing this action plan, some of the activities in the action plan fit within the mandates and programs of various national and county government departments, the corporate sector, NGOs and civil society, communities and other stakeholders. Therefore, implementation of this plan will utilize existing capacity and synergies among such stakeholders and development partners to achieve the objectives. The proposed implementation structure for the National Recovery and Action Plan for Pangolins in Kenya is presented in Figure 14.

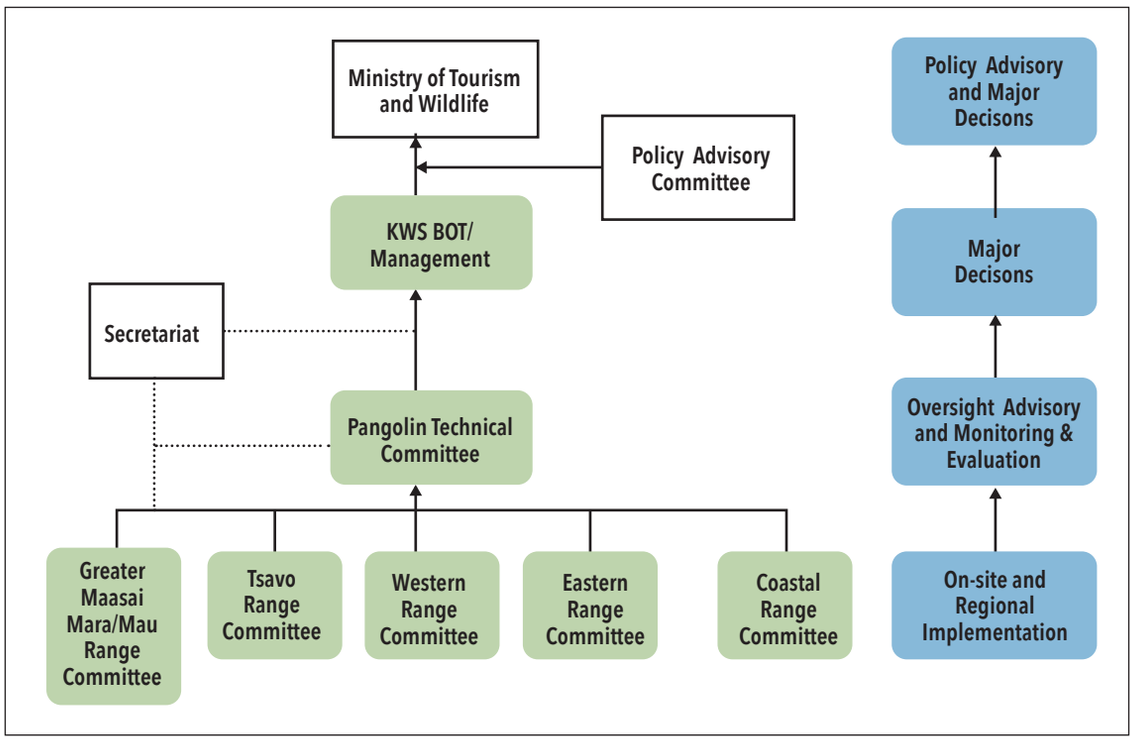


**Figure 14:** Coordination Structure for the National Recovery and Action Plan for Pangolins in Kenya

**Table 6:** Sites covered under various pangolin range areas

| RANGE AREA | SITES COVERED |
|---|---|
| Greater Maasai Mara/Mau Range | Mau forests, Loita Hills, Maasai Mara |
| Tsavo Conservation Area | Makueni, Taita Ranches, Tsavo East and West, Galana ranches, Chyulu, Amboseli (Mbirikani and Kuku ranches) |
| Western Range | Kakamega Forest, North and South Nandi forests, Baringo, Lake Victoria basin, Turkana, West Pokot |
| Eastern Range | Kitui, Tharaka, Tana River (Upper), Garissa, Wajir? |
| Coastal Range | Shimba Hills, Kwale, Arabuko-Sokoke, Lamu, Tana River (Lower) |

## 6.2 Financial Plan

KWS will work with the PTC and PRCs to develop funding proposals to secure funding to support the implementation of this Plan. For grants in which KWS is ineligible to receive funding, KWS will work with key partners to submit collaborative grant applications. KWS will also encourage conservation stakeholders to contribute in-kind funding to support the implementation of the action plan.

### 6.2.1 Budget

Indicative budget required to implement different strategic objectives in this action plan (excluding KWS and stakeholders staff time) has been estimated as outlined in Table 7 below. Indicative costs for different activities under each objective are provided in the logical framework in section 5.4 above.

**Table 7:** Budget estimates required to implement different strategic objectives

| Strategic Objectives | Indicative Budget (USD) | Proportion of Total Budget (%) |
|---|---|---|
| SO1: Fill critical knowledge gaps on pangolin-human dimensions, biology, ecology, and threats to support critical conservation interventions for the three pangolin species in Kenya | 1,478,940 | 34.06 |
| SO2: Combat pangolin crime | 1,759,000 | 40.4 |
| SO3: Ensure habitats suitable for the survival of pangolins in Kenya are secured and well managed | 450,000 | 10.3 |
| SO4: Enhance awareness and build capacity among wildlife law enforcement, local communities and other relevant stakeholders | 459,700 | 10.6 |
| SO5: Mobilize adequate resources to implement the activities in the action plan | 15,000 | 0.34 |
| SO6: E<br>nhance coordination and collaboration in implementation of the action plan | 188,770 | 4.3 |
| **Grand Total** | **4,351,410** | **100** |

## 6.3 Monitoring and Evaluation Plan

In order to track progress and assess performance on implementation of the identified activities against the set targets and objectives, this action plan will be subjected to annual, midterm and end-term monitoring and evaluation exercises. This process will help identify constraints and challenges encountered during implementation of the planned activities, providing a basis for appropriate adjustments based on the lessons learned. The monitoring and evaluation component of this Recovery and Action Plan will draw from the guidelines set in the KWS and National Government's Monitoring and Evaluation Policy.

Since key stakeholders have been identified, their roles defined (section 5.4) and a coordination structure developed (section 6.1), the respective players and coordination organs are expected to fully participate in the M&E reporting procedures. The secretariat, supported by the Pangolin Technical Committee, will undertake the monitoring and evaluation and reporting at the national level and provide support to the range committees. Based on annual plans, monitoring and evaluation for this action plan will entail preparation and submission of quarterly and annual progress reports as well as regular meetings within the proposed coordination structures at the range (sites) and national levels. The M&E matrix is presented in Table 9.

**The monitoring and evaluation framework will have three components:**
**Setting performance targets:** The Range Committees will set performance targets every year as part of their annual implementation plans; these are the Outcomes under every Strategic Objective from the Recovery and Action Plan log frame.

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

**Performance evaluation:** Annual evaluation of the Recovery and Action Plan and implementation plans are important to determine if the intended results have been achieved, and the required resources are in place. Agreed performance targets and indicators at all levels will be used as benchmarks for the evaluation. The outcome of the annual evaluation will form the basis for implementing activities and outputs for the following year. Mid-term and end-term evaluation will be undertaken to evaluate if the set targets were achieved. A scoring system for assessing implementation progress of the action plan is proposed in section 6.3.1.

**The key performance targets for this action plan include the following:**

1. Information on biology and ecology of pangolins is compiled and generated
2. All current and potential pangolin habitats are identified and mapped
3. Poaching of pangolins in Kenya for local use and illegal trading within the country are understood
4. Other threats to pangolins and pangolin habitats are understood
5. Poaching of pangolin species in Kenya for local use is reduced
6. The capacity of law enforcement agencies to reduce illegal trade in pangolins

and their body parts is enhanced

7. Kenya no longer acts as a transit point for illegal pangolin shipments originating from Kenya or elsewhere in the continent
8. Process of confiscation of live pangolins during arrests is streamlined to ensure survival of rescued animals
9. Pangolin habitats are effectively secured and managed
10. Threats to pangolins and pangolin habitats are reduced
11. Protocols for monitoring pangolin habitat status and quality are developed
12. Public awareness on pangolins is enhanced
13. Capacity of pangolin conservation stakeholders is enhanced
14. Pangolin matters are prioritized in stakeholders' agenda
15. Adequate resources are made available for effective implementation of conservation actions
16. Functional regional, technical and advisory committees in place
17. Collaboration between stakeholders strengthened
18. Coordinated information sharing mechanisms in place

### 6.3.1 Action Plan Performance Scoring

Below is a scoring system that can be used for gauging achievement levels of different actions, outputs, outcomes and strategic objectives as outlined in the log frame (section 5.4 above). This scoring may be used during mid-term and end-term evaluations.

**Table 8:** Scoring system for plan implementation success

| Action Completion Score | Output Completion Score (%) | Outcome Completion Score (%) | Strategic Objective Completion Score (%) | Remarks (e.g. reasons for below 100% score, lessons learnt etc.) |
|---|---|---|---|---|
| 0 = Incomplete<br>1 = In progress<br>2 = Complete | Sum of action completion scores/ Maximum possible completion score x 100 | Sum of output completion scores/ Maximum possible completion score x 100 | Sum of outcome completion scores/ Maximum possible completion score x 100 | |

## 6.4 Stakeholder Analysis

Key stakeholders to be involved in the implementation of activities of the action plan have been identified and are as indicated in the conservation action program. Annex 3 gives a list of 133 stakeholders who may play different roles in the conservation of pangolins, as identified during the consultative meetings.

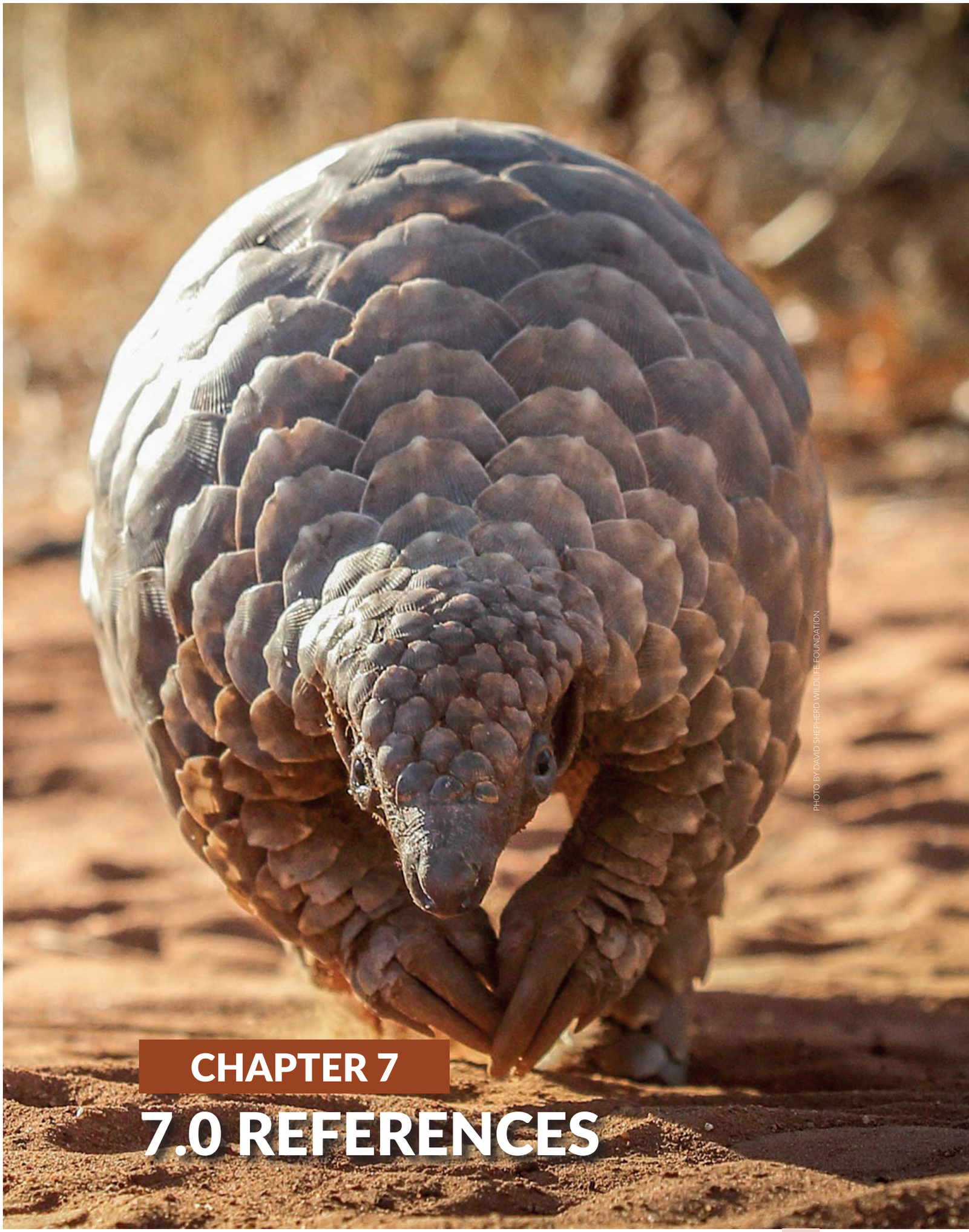

PHOTO BY DAVID SHEPHERD WILDLIFE FOUNDATION

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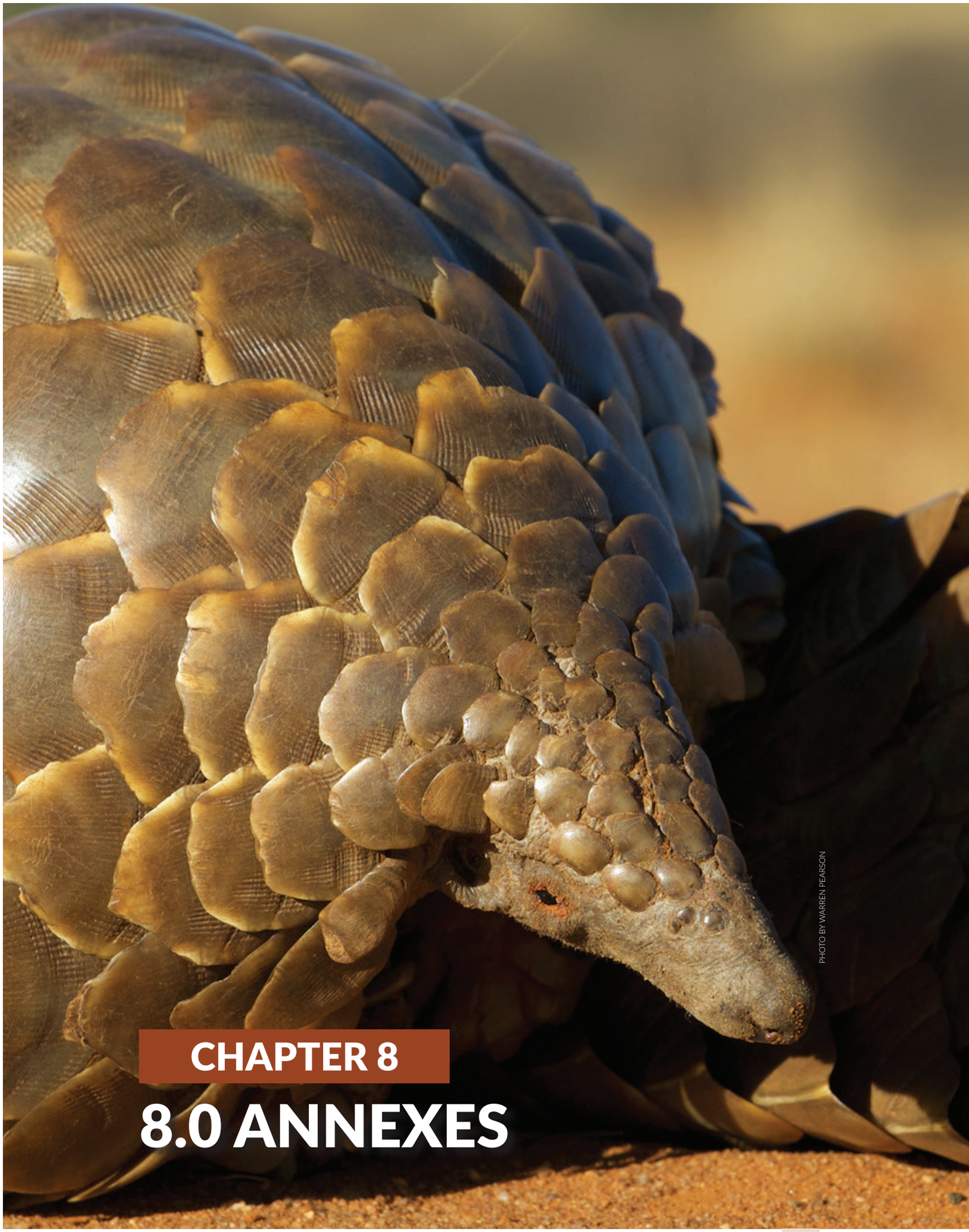

PHOTO BY WARREN PEARSON

# CHAPTER 8

# 8.0 ANNEXES

## Annex 1: List of workshop participants

| No. | Name | Organization | Position | National Inception Workshop (28th July 2022) | Regional Workshops | | | | | National Validation Workshop (26th May 2023) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **M Central Rift Region** (22nd Sept. 2022) eans of Verification | **Tsavo Conservation Area** (27th Sept. 2022) | **Coast Region** (29th Sept. 2022) | **Eastern Region** (4th October 2022) | **Western Region** (13th October 2022) | |
| 1 | Nicci Wright (Virtual participant) | African Pangolin Working Group (APWG) | Co-chairperson | | | | | | | √ |
| 2 | Alexis Kriel (Virtual participant) | African Pangolin Working Group (APWG) | Co-chairperson | | | | | | | √ |
| 3 | Amos Chege | African Wildlife Foundation (AWF) | Project Officer | | | √ | | | | |
| 4 | Koikoi Oleitiptip | Amboseli Ecosystem Trust (AET) | Partnership Coordinator | | | | | | | √ |
| 5 | Emmanuel Kalama | Arabuko-Sokoke - Gede CFA | Program Manager | | | | √ | | | |
| 6 | David Wechuli | Baraton University | Researcher | | | | | | √ | |
| 7 | James Kibet | Baringo County Conservancies Association | Warden | | √ | | | | | |
| 8 | Susan Jepkemoi | Baringo County Conservancies Association | Chief Executive Officer (CEO) | √ | | | | | | |
| 9 | Linda Kimotho | Born Free Foundation | GIS Specialist | √ | | | | | | |
| 10 | Wambui Ngunya | Colobus Conservation Trust | Honorary Warden | | | | √ | | | |
| 11 | Patrick Changawa | Community - Dakatcha Woodland | Honorary Warden | | | | √ | | | |
| 12 | Patrick Changawa | Community - Kakamega Forest | Honorary Warden Kakamega | | | | | | √ | |
| 13 | Hassan Said Randani | Community - Kaya Kwale | Kaya Elder | | | | √ | | | |
| 14 | Jackson Mutui | Community - Mwingi, Kitui County | Reptile Handler | | | | | √ | | |

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| 15 | Alfred Yakhama | Community - Tour Guide Kakamega Forest | Community Tour guide Kakamega / Secretary | | | | | | √ | |
| 16 | Paul C. Kaino | Community - Cherengani Hills CBOs Consortium | Co-chairperson | | | | | | | √ |
| 17 | Amos Chege | Losim Santoo | Community - Centre for Mau Forest Conservation and Restoration | | √ | | | | | |
| 18 | Joseph Mwanyalo Mzozo | Conservancy - Lumo Conservancy | Manager | | | √ | | | | |
| 19 | Lokoyel Pius | Conservancy - Masol Conservancy | Manager | | | | | | √ | |
| 20 | Elijah Jomo | Conservancy - Mtelo West Conservancy | Chairman | | | | | | √ | |
| 21 | Kafaa Rimo | Conservancy - Mwaluganje Wildlife Conservancy | Manager | | | | √ | | | |
| 22 | Peter Ole Tompey | Conservancy - Nyakweri Kirimtet Conservancy | Chairman | √ | | | | | | |
| 23 | Lesisa Jackson | Conservancy - Nyakweri Kirimtet Conservancy | Warden | √ | | | | | | |
| 24 | Solomon Mpatiany | Conservancy - Olderkesi Conservancy | Administrator | √ | | | | | | |
| 25 | Dominic Sitatny | Conservancy - Pardamat Conservancy | Warden | √ | | | | | | |
| 26 | Francis Namalu | Conservancy - Pellow Conservancy | Manager | | | | | | √ | |

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| 27 | Ekuam James | Community - Tour Guide Kakamega Forest | Manager | | | | | | √ | |
| 28 | Paul C. Kaino | Ken Odhiambo | County Government Kisumu | | | | | | √ | |
| 29 | Titus Amdany | County Government of Baringo | Chief Officer Tourism | | √ | | | | | √ |
| 30 | Peter Mathia | County Government of Kakamega | Director of Environment | | | | | | √ | |
| 31 | Josphat M. Kiteme | County Government of Kitui | Warden/ Environment Officer | | | | | | √ | √ |
| 32 | Jimmy Musili | County Government of Kitui | Senior Warden Mwingi Nat. Reserve | | | | | | √ | |
| 33 | Elizabeth Mbinga | County Government of Taita Taveta | Chief Officer Environment | | | | √ | | | √ |
| 34 | Lilian Shari | County Government of Tana River | Chief Officer, Housing | | | | √ | | | |
| 35 | Gatiria Mutiga Njagi | County Government of Tharaka Nithi | Chief Officer, Housing | | | | | √ | | |
| 36 | Kennedy Cheptuimot | County Government of West Pokot | Director Environment, Nat. Resources and Climate Change | | | | | | √ | |
| 37 | Nixon Sajita | Community - Kakamega | Chairman, Kakamega Environmental Education Program (KEEP) | | | | | | √ | |
| 38 | Violet W. Gatonye | East African Wildlife Society (EAWLS) | Program Assistant | √ | | | | | | |

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| 39 | Theresa Aoko | East African Wildlife Society (EAWLS) | Project Officer | | | | | | | √ |
| 40 | Pamela Dio (Virtual/ in-person participant) | Fauna & Flora | Programme officer | √ | | | | | | √ |
| 41 | Alegria Olmedo (Virtual participant) | Fauna & Flora | Technical Specialist, Wildlife Trade, Africa | √ | | | | | | √ |
| 42 | Patrick Lelei | Fauna & Flora | Finance and Administration Manager | √ | | | | | | √ |
| 43 | Josephine Nzilani | Fauna & Flora | Terrestrial Program Manager | √ | | | | | | √ |
| 44 | Christine Macharia | Fauna & Flora | Finance and Administration Officer | √ | | | | | | |
| 45 | John K. Kiptum | County Government of Taita Taveta | Technical Specialist Conservation Policy | √ | √ | √ | √ | √ | √ | √ |
| 46 | Daniel Ndolo | Fauna & Flora | Project Officer | √ | √ | √ | √ | √ | √ | √ |
| 47 | Paul Mwangi | Fauna & Flora | Driver | | √ | | | | | √ |
| 48 | Serah Munguti | Fauna & Flora | Country Manager | √ | | | | | | √ |
| 49 | Helen Gichohi | Fauna & Flora | Ambassador for Conservation in Africa | √ | | | | | | |
| 50 | Andrew Bamford | Fauna & Flora | Technical specialist, Biodiversity and Conservation monitoring | | | | | | | √ |
| 51 | Sangale Lengoiboni | Hirola Conservation Project | Researcher, Garissa | | | | | √ | | |

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| 52 | Stuart Nixon | IUCN Species Survival Commission Pangolin Specialist Group | IUCN SSC Pangolin Specialist Group Regional Chair for East Africa | √ | | | | | | |
| 53 | Matt Shirley | IUCN Species Survival Commission Pangolin Specialist Group | Co-Chair of the IUCN SSC Pangolin Specialist Group | √ | | | | | | √ √ |
| 54 | Shadrack Muya | Jomo Kenyatta University of Agriculture & Technology (JKUAT) | Senior Lecturer | √ | | | | | | √ |
| 55 | Edwin Misachi | Kenya Forest Service (KFS) | Forester - Kwale | | | | √ | | | |
| 56 | Jenipher Nasombi | Kenya Forest Service (KFS) | Chief Forest Conservator (CFC), Mombasa | | | | √ | | | |
| 57 | Komora Soye | Kenya Forest Service (KFS) | Driver | | | | √ | | | |
| 58 | James K. Mwangi | Kenya Forest Service (KFS) | KFS Kitui - Advisory | | | | | √ | | |
| 59 | James K. Gichia | Kenya Forest Service (KFS) | Station Manager Kakamega | | | | | | √ | |
| 60 | Jannette Kerubo | Kenya Professional Safari Guides Association (KPSGA) | General Manager | √ | | | | | | |
| 61 | Erupe Josephat | Kenya Wildlife Service (KWS) | Senior Warden | | | | | | √ | |
| 62 | Augustine Langat | Kenya Wildlife Service (KWS) | Warden – Kora National Park | | | | | √ | | |
| 63 | Lilian Ajuoga | Kenya Wildlife Service (KWS) | Assistant Director (AD), Management Planning | √ | | | | | √ | |

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| 64 | Samuel Tokore | Kenya Wildlife Service (KWS) | Senior Assistant Director (SAD) – Coast Cons. Area | | | | √ | | | |
| 65 | Catherine Wambani | Kenya Wildlife Service (KWS) | Senior Assistant Director (SAD) – Western Cons. Area | | | | | | √ | √ |
| 66 | Hussein Halake | Kenya Wildlife Service (KWS) | Warden | | | | | √ | | |
| 67 | Ntindi Kassim | Kenya Wildlife Service (KWS | Warden | | | | √ | | | |
| 68 | Liverson M. Kania | Kenya Wildlife Service (KWS) | Warden Chyulu | | | √ | | | | |
| 69 | Augustine Ajuoga | Kenya Wildlife Service (KWS) | Warden | | | | √ | | | |
| 70 | Ibrahim K. Athman | Kenya Wildlife Service (KWS) | Legal Secretary | √ | | | | | | |
| 71 | Christine Barasa | Kenya Wildlife Service (KWS) | Driver | | | | | √ | | |
| 72 | Christine J. Boit | Kenya Wildlife Service (KWS) | Senior Warden Kisumu | | | | | | √ | |
| 73 | Linus Kariuki | Kenya Wildlife Service (KWS) | Asst. Director, Species Conservation | √ | √ | √ | √ | √ | | √ |
| 74 | Benard Chepkwony | Kenya Wildlife Service (KWS) | S/Driver | | √ | | | | | |
| 75 | Chris Mbugua | Kenya Wildlife Service (KWS) | S/Driver | | √ | | | | √ | |
| 76 | Jacob I. Orahle | Kenya Wildlife Service (KWS) | Senior Warden | | | | √ | | | |
| 77 | Moses Odhiambo | Kenya Wildlife Service (KWS) | Administration officer, Tsavo Conservation Area (TCA) | | | √ | | | | |

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| 78 | Robert Obrein | Kenya Wildlife Service (KWS) | Senior Assistant Director – Eastern Conservation Area (ECA) | √ | | | | √ | | |
| 79 | Wilson K. Njue | Kenya Wildlife Service (KWS) | Senior Warden Tsavo East national Park (TENP) | | | √ | | | | |
| 80 | Jerina K. Nyaga | Kenya Wildlife Service (KWS | Assistant Warden | | | | | √ | | |
| 81 | Simon Gichohi | Kenya Wildlife Service (KWS) | Driver/Ranger | | | √ | | | | |
| 82 | Dickson Magangi | Kenya Wildlife Service (KWS) | Driver | | √ | | | | | |
| 83 | Vincent Muia | Kenya Wildlife Service (KWS) | Driver | | | √ | | | | |
| 84 | John Mwiti | Kenya Wildlife Service (KWS) | Driver | √ | | | | √ | | |
| 85 | Benjamin Korir | Kenya Wildlife Service (KWS) | Driver | | | | | √ | | √ |
| 86 | Menza Kazugu | Kenya Wildlife Service (KWS) | Principal Multimedia Technologist | √ | | | | | | |
| 87 | Nixon Simotwo | Kenya Wildlife Service (KWS) | Driver | | | √ | | | | |
| 88 | Philemon Chebet | Kenya Wildlife Service (KWS) | Warden | | √ | | | | | |
| 89 | James Kailungush | Kenya Wildlife Service (KWS) | Staff Officer Operations | | | √ | | | | |
| 90 | Ndorosi Kilodi | Kenya Wildlife Service (KWS) | Warden | | √ | | | | | |
| 91 | Ali Mwandime | Kenya Wildlife Service (KWS) | Driver | | | | √ | | | |

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| 92 | David Oyugi | Kenya Wildlife Service (KWS) | Senior Warden | | | √ | | | | |
| 93 | Joseph Dadacha | Kenya Wildlife Service (KWS) | Ag. Assistant Director | √ | | | | | | √ |
| 94 | Hillary Kiptoo | Kenya Wildlife Service (KWS | Driver | | | | √ | | | |
| 95 | Paul Wambi | Kenya Wildlife Service (KWS) | Warden | √ | | | √ | | | |
| 96 | Alice Wawira | Kenya Wildlife Service (KWS) | Communication Intern | √ | | | | | | |
| 97 | David B. Itero | Kenya Wildlife Service (KWS) | Driver | | | | √ | | | |
| 98 | Samuel Muriithi | Kenya Wildlife Service (KWS) | Driver/Ranger | | | √ | | | | |
| 99 | George Osuri | Kenya Wildlife Service (KWS) | Senior Assistant Director (SAD) | √ | | | | | | √ |
| 100 | A.O. Ibrahim | Kenya Wildlife Service (KWS) | Assistant Director | | √ | | | | | |
| 101 | Salome Gachago | Kenya Wildlife Service (KWS) | SWO Landscapes | √ | | | | | | |
| 102 | Florence Magoma | Kenya Wildlife Service (KWS) | Senior Legal Officer prosecution | √ | | | | | | |
| 103 | Lucy Muita | Kenya Wildlife Service (KWS) | Senior Warden | √ | √ | | | √ | | |
| 104 | Newton Muraya | Kenya Wildlife Service (KWS) | Senior Principal ICT officer | √ | | | | | | √ |
| 105 | Christine Winja | Kenya Wildlife Service (KWS) | Senior Principal Office Administrator | √ | | | | | | √ |
| 106 | Lekishon Kenana | Kenya Wildlife Service (KWS) | Assistant Director | √ | | | | | | |

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| 107 | Abdi Duti | Kenya Wildlife Service (KWS) | Senior Assistant Director (SAD) | √ | √ | | | | | |
| 108 | Lucy K. Kivunzi | Kenya Wildlife Service (KWS) | Senior Principal Office Administrator- Coast Conservancy | | | | √ √ | | | √ |
| 109 | Kikorir Cheruiyot | Kenya Wildlife Service (KWS) | Warden | | √ | | | | | |
| 110 | Kitavi Kaloki | Kenya Wildlife Service (KWS) | Warden - Meru NP | | | | | √ | | |
| 111 | John Wambua | Kenya Wildlife Service (KWS) | Senior Assistant Director (SAD) | √ | | | | | | √ |
| 112 | Johnstone Emedell | Kenya Wildlife Service (KWS) | Principal Driver | | | | | | √ | |
| 113 | Wycliffe Rutto | Kenya Wildlife Service (KWS) | Senior Driver | | | | | | √ | |
| 114 | Milcent Odundo | Kenya Wildlife Service (KWS) | Warden | | | | | | √ | |
| 115 | Michael Wanjau | Kenya Wildlife Service (KWS) | Acting Director Wildlife &Community Service | √ | | | | | | |
| 116 | Solomon Kyalo | Kenya Wildlife Service (KWS) | H- Multilateral Environmental Agreements Implementations | √ | | | | | | √ |
| 117 | Benard Rono | Kenya Wildlife Service (KWS) | Veterinary Officer | √ | | | | √ | | |
| 118 | Margaret Mosse | Kenya Wildlife Service (KWS) | Chief Licensing Officer / Assistant Director | √ | | | | | | √ |
| 119 | Jenipher Olang | Kenya Wildlife Service (KWS) | Administration officer | √ | | | | | | √ |
| 120 | Daniel Serem | Kenya Wildlife Service (KWS) | Driver | √ | | | | | | √ |

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| 121 | David Leiting | Kenya Wildlife Service (KWS) | Driver | √ | | | | | | |
| 122 | Jackson Kibor | Kenya Wildlife Service (KWS) | Warden - Nasolot National Reserve | | | | | | √ | |
| 123 | CPT. Ken Ochieng | Kenya Wildlife Service (KWS) | Senior Assistant Director (SAD) -TCA | | | | | | | √ |
| 124 | Samuel Mwendia Maina | Kenya Wildlife Service (KWS) | Intern ICT | | | | | | | √ |
| 125 | Joyce Kirui | Kenya Wildlife Service (KWS) | Analysis & Research | | | | | | | √ |
| 126 | Ricky Kariuki David | Kenya Wildlife Service (KWS) | Intern ICT | | | | | | | √ |
| 127 | Adan Kalla | Kenya Wildlife Service (KWS) | AD Conservation Education | | | | | | | √ |
| 128 | Esther Andusi | Kenya Wildlife Service (KWS) | Legal | | | | | | | √ |
| 129 | Faith Njoki | Kenya Wildlife Service (KWS) | Intern Conservation Science Programme | | | | | | | √ |
| 130 | Joseph Sarara | Kenya Wildlife Service (KWS) | Senior Assistant Director (SAD) – Eastern Conservation Area | | | | | | | √ |
| 131 | Stephen Okoth | Kenya Wildlife Service (KWS) | WPD-Logistics &Admin | | | | | | | √ |
| 132 | Collins Kandie | Kenya Wildlife Service (KWS) | Photographer | | | | | | | √ |
| 133 | Isabelah Nyabua | Kenya Wildlife Service (KWS) | Communications Officer | | | | | | | √ |
| 134 | Kabete Nancy | Kenya Wildlife Service (KWS) | Director Wildlife Security | | | | | | | √ |

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| 135 | Hope Nyangweso | Kenya Wildlife Service (KWS) | Assistant Communications Officer | | | | | | | √ |
| 136 | Isaac Lekolool | Kenya Wildlife Service (KWS) | Head Veterinary Services | | | | | | | √ |
| 137 | Chonga Stephen | Kenya Wildlife Service (KWS) | Wildlife Security Logistics & Administration | | | | | | | √ |
| 138 | John Mungai | Kenya Wildlife Service (KWS) | Driver | | | | | | | √ |
| 139 | Donald Sakwa | Kenya Wildlife Service (KWS) | S/Driver | √ | √ | | | | | |
| 140 | Kipkazi Wesley | Lusaka Agreement Task Force (LATF) | Field Officer | √ | | | | | | √ |
| 141 | Emmanuel L. Suyianka | Masai Mara National Reserve | Warden | | √ | | | | | |
| 142 | Eric Ole Reson | Masai Mara Wildlife Conservation Association (MMWCA) | Conservation Programme Officer (CPO) | √ | | | | | | √ |
| 143 | Angela Sanau | Masai Mara Wildlife Conservation Association (MMWCA) | Program Officer | √ | | | | | | √ |
| 144 | Rupi Mangat | Nation Media Group | Nature and travel Columnist | √ | | | | | | |
| 145 | Jacinta Khisa | National Environment Management Authority (NEMA) | Environment Assistant | | | √ | | | | |
| 146 | Leocrist Mwakajo | National Environment Management Authority (NEMA) | Intern | | | √ | | | | √ |

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| 147 | Ogeto Mwebi | National Museums of Kenya (NMK) | Technical Committee | √ | √ | | | √ | √ | √ |
| 148 | Simon Musila | National Museums of Kenya (NMK) | Senior Research Scientist | √ | √ | √ | √ | √ | √ | √ |
| 149 | Bernard Agwanda | National Museums of Kenya (NMK) | Technical Committee | | | √ | √ | | | |
| 150 | Taita Terer | National Museums of Kenya (NMK) | Head, Centre for Biodiversity | √ | | | | | | |
| 151 | Odera George | Nature Kenya | Project Manager, Tana Delta | | | | √ | | | |
| 152 | Joshua Mutunga | Nature Kenya | Local Action Manager | √ | | | | | | |
| 153 | Zaphida Chege | Office of the Director of Public Prosecution (ODPP) | ODPP-Kenya | | | | | | | √ |
| 154 | Abraham Achipa | Northern Rangeland Trust (NRT) | Research and Monitoring Officer (RMO) | | | | | | √ | √ |
| 155 | Hamisi Salim | SHICOFA | CFA chairman | | | | √ | | | |
| 156 | Musa Moloi | South Rift Association of Land Owners (SORALO) | Commander | | √ | | | | | √ |
| 157 | Lenkumo Koyie | SORALO | Representative | | √ | | | | | |
| 158 | Cindy Wanjiku | State Department for Wildlife | Senior Wildlife officer | √ | | | | | | √ |
| 159 | Nyawira Felister | State Department of Wildlife | Intern | √ | | | | | | |
| 160 | Monicah Njogu | State Department of Wildlife | Principal Wildlife officer | √ | | | | | | √ |
| 161 | Geoffrey Boronjo | State Department of Wildlife | | √ | | | | | | |

## Annex 1: List of workshop participants

| No. | Name | Organization | Position | National Inception Workshop (28th July 2022) | Regional Workshops | | | | | National Validation Workshop (26th May 2023) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **M Central Rift Region** (22nd Sept. 2022) eans of Verification | **Tsavo Conservation Area** (27th Sept. 2022) | **Coast Region** (29th Sept. 2022) | **Eastern Region** (4th October 2022) | **Western Region** (13th October 2022) | |
| 162 | Godfrey Makokha | Taita Taveta University (TTU) | Senior Lecturer (Geoinformatics) | | | √ | | √ | √ | √ |
| 163 | Ronald Mulwa | Technical Consultant | Compilation of this Action Plan | √ | √ | √ | √ | √ | √ | √ |
| 164 | John Kasaya | Technical Consultant's Team | Rapporteur | √ | √ | √ | √ | √ | √ | √ |
| 165 | Ann Thuo | Technical Consultant's Team | Rapporteur | √ | | | | | | √ |
| 166 | Anne Namaemba | Technical Consultant's Team | Rapporteur | | | | | | √ | |
| 167 | Mariciano Mutiga | Tharaka University | Lecturer | | | | | √ | | |
| 168 | Joel Siololo | The Pangolin Project (TPP) | Assistance Researcher | | | | | | | |
| 169 | Beryl Makori | Office of the Director of Public Prosecution (ODPP) | Program Manager | | √ | √ | √ | | | √ |
| 170 | Job Seurei | The Pangolin Project (TPP) | Driver | | √ | | | | | |
| 171 | Claire Okell | The Pangolin Project (TPP) | Director | √ | | | | √ | | √ |
| 172 | Linah Clifford (Virtual participant) | TRAFFIC | Legal Officer | | | | | | | √ |
| 173 | Judith Makwali | University of Eldoret (UoE) | Senior Lecturer | | | | | | √ | |
| 174 | Johnstone Kimanzi | University of Eldoret (UoE) | HoD, Wildlife Management | √ | | | | | | |
| 175 | Daniel Muteti | Wildlife Research & Training Institute (WRTI) | Principal Research Scientist (PRS) | | | √ | √ | | | |
| 176 | George Anyona | Wildlife Research & Training Institute (WRTI) | Research Scientist | | | | | | √ | |
| 177 | Jacquiline Benard | Wildlife Research & Training Institute (WRTI) | Research Scientist | | | | √ | | | |

## Annex 1: List of workshop participants

| No. | Name | Organization | Position | National Inception Workshop (28th July 2022) | Regional Workshops | | | | National Validation Workshop (26th May 2023) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | **M Central Rift Region** (22nd Sept. 2022) eans of Verification | **Tsavo Conservation Area** (27th Sept. 2022) | **Coast Region** (29th Sept. 2022) | **Eastern Region** (4th October 2022) | **Western Region** (13th October 2022) | |
| 178 | Lukaria Kanyi | Wildlife Research & Training Institute (WRTI) | Research Scientist | | | | | | √ | |
| 179 | David Kimutai | Wildlife Research & Training Institute (WRTI) | Rapporteur | | | √ | | | | |
| 180 | Fred Omenya | Wildlife Research & Training Institute (WRTI) | Principal Research Scientist | | | | | √ | | |
| 181 | Joseph Mukeka | Wildlife Research & Training Institute (WRTI) | Principal Research Scientist | | √ | √ | √ | | | |
| 182 | Geraldine Mjomba | Wildlife Research & Training Institute (WRTI) | Research Assistant | | | √ | | | | |
| 183 | Fridah Mwikamba | Wildlife Research & Training Institute (WRTI) | Research Assistant | | | √ | | | | |
| 184 | Chrispine Ngesa | Wildlife Research & Training Institute (WRTI) | Research Scientist | | | √ | | | | |
| 185 | Hillary Kemboi | Wildlife Research & Training Institute (WRTI) | Driver | | | √ | | | | |
| 186 | Stephen Mwiu | Wildlife Research & Training Institute (WRTI) | Research Scientist | √ | √ | √ | | √ | | √ |
| 187 | Christine Atizuo | Wildlife Research & Training Institute (WRTI) | Administration Assistant | √ | | | | | | |

## Annex 1: List of workshop participants

| No. | Name | Organization | Position | National Inception Workshop (28th July 2022) | Regional Workshops | | | | | National Validation Workshop (26th May 2023) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **M Central Rift Region** (22nd Sept. 2022) eans of Verification | **Tsavo Conservation Area** (27th Sept. 2022) | **Coast Region** (29th Sept. 2022) | **Eastern Region** (4th October 2022) | **Western Region** (13th October 2022) | |
| 188 | Moses Maritim | Wildlife Research & Training Institute (WRTI) | Driver | √ | | | | | √ | |
| 189 | Shadrack Ngene | Wildlife Research & Training Institute (WRTI) | Principal Research Scientist | √ | | | | √ | | |
| 190 | Antoinette Migunga | Wildlife Research & Training Institute (WRTI) | Assistant Forensic Analyst | √ | | | | | | √ |
| 191 | Niva Amenya | Wildlife Research & Training Institute (WRTI) | Conservation Science Programme | √ | | | | | | |
| 192 | Winfridah Onyari | Wildlife Research & Training Institute (WRTI) | Assistant Forensic Analyst | | | | | | | √ |
| 193 | Bernard Kuloba | Wildlife Research & Training Institute (WRTI) | Principal Research Scientist | | √ | | | | | |
| 194 | Bernard Amakobe | Wildlife Works LTD | Research Scientist | | | √ | | | | |
| 195 | Drew McVey | Worldwide Fund for Nature (WWF) -Kenya | Regional Wildlife Crime Technical Advisor | | | | | | | √ |
| 196 | Asma Awadh | Worldwide Fund for Nature (WWF) -Kenya | Programme Manager - Coast | | | | | √ | | |
| 197 | Guerveena Ghataure | Zoological Society of London (ZSL) | Country Director | √ | | | | | | √ |
| 198 | Moses Wekesa | Zoological Society of London (ZSL) | Field Manager | | | | | | | √ |
| 199 | Dickson Ritan (Virtual participant) | Kenya Wildlife Service (KWS) | Deputy Director, Parks and Reserves | √ | | | | | | √ |
| | | **Number of participants in each workshop** | | **67** | **34** | **31** | **32** | **27** | **31** | **62** |

## Annex 2: Group photos of workshop participants

Inception stakeholders workshop in Nairobi

Stakeholders' Workshop Central Rift Region (Narok)

Stakeholders' workshop Tsavo Conservation Area (Voi)

Stakeholders' workshop Coast Region (Diani)

Stakeholders' Workshop Eastern Region (Mwingi)

Stakeholders' Workshop Western Region (Eldoret)

## Annex 3: List of stakeholders and roles they can play in pangolin conservation

| # | Stakeholder | Role |
|---|---|---|
| 1 | Kenya Wildlife Service (KWS) | Conservation and Law enforcement |
| 2 | Wildlife Research and Training Institute (WRTI) | Research, Monitoring, Training |
| 3 | National Museums of Kenya (NMK) | Research, Monitoring and Forensic determinations |
| 4 | Fauna & Flora International (FFI) | Coordination, Fundraising |
| 5 | Ministry of Interior and Coordination of National Government | Law Enforcement |
| 6 | Kenya Forest Service (KFS) | Conservation and Law enforcement |
| 7 | National Research Fund (NRF) | Funding for research and modelling |
| 8 | IUCN Pangolin Specialist Group (IUCN-PSG) | Coordination, information sharing, building capacity and creating awareness |
| 9 | NEMA (National Environment Management Authority) | Integrating pangolins into government conservation agenda |
| 10 | Ministry of Tourism and Wildlife | Policy direction and lobbying for funding |
| 11 | Ministry of Environment, Climate Change & Forestry | Policy direction and lobbying for funding |
| 12 | Council of Governors (COG) | Link between County Governments |
| 13 | County Governments of West Pokot, Laikipia, Baringo, Kajiado, Kitui, Taita Taveta, Kakamega, Narok, Siaya, Kwale, Busia, Nandi, Makueni, Turkana, Isiolo, Garissa, Marsabit, Meru, Kilifi, Tana River, Lamu, Elgeyo Marakwet | Access to sites, land use planning, indigenous knowledge and funding |
| 14 | Baringo Conservancies Association-(BCA) | Securing habitats in community lands, data provision through scouts |

| | | |
|---|---|---|
| 15 | Laikipia Conservancies Association (LCA) | Securing habitats in community lands, data provision through scouts |
| 16 | Conservancies in other areas e.g. within West Pokot, Elgeyo Marakwet and Baringo, Kajiado, etc. | Securing habitats in community lands, data provision through scouts |
| 17 | Masai Mara Wildlife Conservation Association (MMWCA) | Securing habitats in community lands, data provision through scouts |
| 18 | Southern Rangelands Association of Landowners (SORALO) | Securing habitats in community lands, data provision through scouts |
| 19 | Kenya Wildlife Conservancies Association (KWCA) | Umbrella body for conservancy associations |
| 20 | TRAFFIC | Illegal pangolin trade data and monitoring |
| 21 | Customs & Border Control Department | Illegal trafficking data and control of illegal trade in pangolins |
| 22 | National Police Service (DCI, Police) | Law enforcement, help to stem illegal trade |
| 23 | National Intelligence Service (NIS) | Help to stem illegal trade |
| 24 | The Judiciary | Prosecution of pangolin traffickers and poachers |
| 25 | Directorate of Public Prosecution (DPP) | Prosecution of pangolin traffickers and poachers |
| 26 | National Commission for Science, Technology and Innovation (NACOSTI) | Issuance of Research Permits, Information sharing |
| 27 | Northern Rangelands Trust | Securing habitats in community lands, data provision through scouts |

| | | |
|---|---|---|
| 28 | Zoological Society of London (ZSL) | Fundraising, Information sharing |
| 29 | The Pangolin Project (TPP) | Research and monitoring, data sharing, fundraising |
| 30 | International Fund for Animal Welfare (IFAW) | Fundraising |
| 31 | Worldwide Fund for Nature (WWF) KENYA | Fundraising |
| 32 | Wildlife Clubs of Kenya (WCK) | Education and awareness in schools |
| 33 | Conservation Alliance of Kenya (CAK) | Umbrella for all conservation NGOs |
| 34 | African Wildlife Foundation (AWF) | Fundraising |
| 35 | African Conservation Center (ACC) | Fundraising and research |
| 36 | Born Free Foundation | Fundraising |
| 37 | Kenya Airports Authority (KAA) | Entry points for illegal trade, provision of data |
| 38 | Academia/ Universities: Nairobi, Kenyatta, Eldoret, Jomo Kenyatta (JKUAT), Egerton, Masai Mara, Pwani, Taita Taveta, Technical University Mombasa (TUM), Technical University of Kenya (TUK), Karatina, South Eastern Kenya (SEKU), Chuka, Maseno, Masinde Muliro, Aga Khan, Moi, Turkana, Lukenya, Garissa, Tharaka, Meru, Baraton | Research and generation of new knowledge |
| 39 | Kenya Professional Guides Association | Report on pangolin sightings (data sharing) |
| 40 | Kenya Association of Tour Operators (KATO) | Report on pangolin sightings (data sharing) |
| 41 | Big Life Foundation | Funding, creating awareness, advocacy |

| | | |
|---|---|---|
| 42 | Sheldrick Wildlife Trust (SWT) | Funding, creating awareness |
| 43 | Wildlife Direct | Funding, creating awareness |
| 44 | Kakamega Environmental Education Programme (KEEP) | Information sharing and awareness creation |
| 45 | African Pangolin Working Group | Fund raising, benchmarking & experience sharing |
| 46 | Pangolin Crisis Fund | Funding |
| 47 | East African Wildlife Society | Advocacy and education |
| 48 | Nature Kenya | Create awareness, provide data through Site Support Groups, advocacy |
| 49 | Media | Sharing information to the public, highlighting plight of pangolins, awareness |
| 50 | Stand Up Shout Out International | Advocacy and awareness on pangolin conservation |
| 51 | Amboseli Tsavo Game Scouts Association | Report on pangolin sightings (data sharing) |
| 52 | Youth for Conservation | Advocacy and awareness creation |
| 53 | Honorary wardens in the relevant areas | Assist state organizations responsible for wildlife |
| 54 | UNDP (project on combating Illegal Wildlife trade) | Data on illegal pangolin trade |
| 55 | NorthEastern Conservation Association (NECA) | Securing habitats in community lands, data provision through scouts |
| 56 | Tsavo Trust | Protects wildlife and biodiversity of Tsavo conservation area |
| 57 | Maasai Wilderness Conservation Trust (MWCT) | Fund raising |

| | | |
|---|---|---|
| 58 | National Alliance of Community Forest Associations (NACOFA) | Data provision on pangolin sightings |
| 59 | Ewaso Lions | Data provision on pangolin sightings |
| 60 | Grevy's Zebra Trust (GZT) | Data provision on pangolin sightings |
| 61 | ACC-Linear infrastructure Road ecology | Developing policies, building capacity and creating awareness |
| 62 | Kenya Forests Working Group (KFWG) | Awareness, advocacy |
| 63 | Kenya Wetlands Forum (KWF) | Awareness, advocacy |
| 64 | National Land Commission (NLC) | Manage public land on behalf of the National and county governments |
| 65 | Mt Kenya Trust | Data provision on pangolin sightings |
| 66 | Rhino Ark | Awareness, advocacy, fundraising, data provision on pangolin sightings |
| 67 | Laikipia Wildlife Forum | Awareness, advocacy, fundraising, data provision on pangolin sightings |
| 68 | Faith Based Organizations | Raising awareness |
| 69 | Taita Taveta Wildlife Forum | Awareness, fundraising, data provision on pangolin sightings |
| 70 | Community Forest Association (CFA) – in various pangolin range forests | Reports on pangolin sightings |
| 71 | Milgis Trust - Samburu | Awareness, data provision on pangolin sightings |
| 72 | Eco2librium(Kakamega) | Awareness |
| 73 | Pellow Community Conservancy | Awareness, data provision on pangolin sightings |

| | | |
|---|---|---|
| 74 | Masol Community Conservancy | Awareness, data provision on pangolin sightings |
| 75 | Taita Taveta Wildlife Conservancies Association (TTWCA) | Awareness, data provision on pangolin sightings |
| 76 | Friends of Lake Turkana | Awareness, data provision on pangolin sightings |
| 77 | Turkana Pastoralist Development Organization | Awareness, data provision on pangolin sightings |
| 78 | Kakamega Forest Community Conservation Arm | Awareness, data provision on pangolin sightings |
| 79 | World Vision - Kenya | Awareness, fundraising, data provision on pangolin sightings |
| 80 | Community Members | Awareness, information on indigenous knowledge, data provision on pangolin sightings |
| 81 | Catholic Diocese of Lodwar | Awareness, data provision on pangolin sightings |
| 82 | Kakamega Forest Community Conservation Network | Awareness, data provision on pangolin sightings |
| 83 | SAGAs (Semi-Autonomous Governmental Agencies) | Integrating pangolins in government conservation agenda, raising awareness |
| 84 | Local communities | Raising awareness, information on indigenous knowledge, data provision on pangolin sightings |
| 85 | Amboseli Ecosystems Trust (EAT) | Awareness, data provision on pangolin sightings |
| 86 | ADC (Agriculture Development Corporation (ADC) | Integrating pangolins in government conservation agenda, data provision on pangolin sightings |
| 87 | Civil society organizations, community-based organizations and non-governmental organizations | Monitoring government policies, actions and hold government accountable/advocacy |

| | | |
|---|---|---|
| 88 | Kenya Railways | Integrating pangolins in government conservation agenda, data provision on pangolin sightings |
| 89 | Provincial and county administration | Coordination and law enforcement |
| 90 | Law enforcement agencies | Uphold environmental laws, provide patrols and investigate wildlife crimes |
| 91 | Schools | Developing awareness |
| 92 | Research institutions | Studies of pangolin behaviour, ecology, biology and human dimensions, generating new knowledge, technologies, attracting researchers, investment in research facilities |
| 93 | Religious groups | Raising awareness of pangolins as part of creation |
| 94 | Learning institutions | Raising awareness, data provision on pangolin sightings |
| 95 | KALRO (Kenya Agricultural and Livestock Research Organization (KALRO) | Integrating pangolins in government conservation agenda, data provision on pangolin sightings |
| 96 | KEFRI (Kenya Forestry Research Institute) | Integrating pangolins in government conservation agenda, data provision on pangolin sightings |
| 97 | Adventist Development Relief Agency (ADRA) | Raising awareness, data provision on pangolin sightings |
| 98 | KENHA (Kenya National Highways Authority) | Data provision on pangolin sightings |
| 99 | National Drought Management Authority (NDMA) | Integrating pangolins in government conservation agenda, data provision on pangolin sightings |
| 100 | Kenya Water Towers Agency | Integrating pangolins in government conservation agenda, data provision on pangolin sightings |

| | | |
|---|---|---|
| 101 | Local administrators e.g., Chiefs and Ass. Chiefs | Raising awareness, assisting in law enforcement, data provision on pangolin sightings |
| 102 | Kenya Tourism Board (KTB) | Integrating pangolins in government conservation agenda, data provision on pangolin sightings |
| 103 | Hirola Conservation Programme | Data provision on pangolin sightings |
| 104 | Somali Giraffe Project | Data provision on pangolin sightings |
| 105 | Caritas Kitui | Raising awareness |
| 106 | Kipini Conservancy | Data provision on pangolin sightings |
| 107 | Kanyonyoo Wildlife Conservancy (Yatta B2 group) | Data provision on pangolin sightings |
| 108 | Compassion International Kenya | Raising awareness |
| 109 | Northeastern Wildlife Conservancies Association (NEWCA) | Data provision on pangolin sightings |
| 110 | Kaya elders, Mijikenda community | Raising awareness, data provision on pangolin sightings |
| 111 | Base Titanium Limited | Raising awareness, data provision on pangolin sightings |
| 112 | A Rocha Kenya | Raising awareness, data provision on pangolin sightings |
| 113 | Pwani Ecosystem Conservancies Association Foundation - PECAF | Raising awareness, data provision on pangolin sightings |
| 114 | Hoteliers & Tour operators | Fundraising, raising awareness, data provision on pangolin sightings |
| 115 | Friends of Arabuko-Sokoke Forest | Raising awareness, data provision on pangolin sightings |

| | | |
|---|---|---|
| 116 | Friends of Shimba Hills | Raising awareness, data provision on pangolin sightings |
| 117 | Colobus Trust | Raising awareness, data provision on pangolin sightings |
| 118 | African forest - Shimba | Raising awareness, data provision on pangolin sightings |
| 119 | Conservancies within Kwale, Kilifi and Tana River | Raising awareness, data provision on pangolin sightings |
| 120 | Kwale Ecosystem Community Forest Association (KECFA) | Raising awareness, data provision on pangolin sightings |
| 121 | Tana Delta Conservation Network | Raising awareness, data provision on pangolin sightings |
| 122 | Mwaluganje Wildlife Conservancy | Raising awareness, data provision on pangolin sightings |
| 123 | Group Ranches | Raising awareness, data provision on pangolin sightings |
| 124 | Forestry Society of Kenya (FSK) | Integrating pangolins in government conservation agenda, raising awareness, data provision on pangolin sightings |
| 125 | Transport Sector stakeholders e.g. Matatu Owners Association | Raising awareness, data provision on pangolin sightings |
| 126 | Cultural elders and leaders | Raising awareness, information on indigenous knowledge, data provision on pangolin sightings |
| 127 | Private Sector | Integrating pangolins in conservation agenda, raising awareness, data provision on pangolin sightings |
| 128 | Kenya Rural Roads Authority (KeRRA) | Raising awareness, data provision on pangolin sightings |
| 129 | Stiching Nerderlandse Vrijwillingers (SNV) | Fundraising, raising awareness |

| | | |
|---|---|---|
| 130 | Tsavo Cheetah Project | Raising awareness, data provision on pangolin sightings |
| 131 | Wildlife Works | Fundraising, raising awareness, data provision on pangolin sightings |
| 132 | Tropical Biology Association (TBA) | Network of researchers |

# Editorial Team

### National Pangolin Technical Committee

**Solomon Kyalo**, Senior Assistant Director, Conservation Science Programs and Head, Multilateral Environmental Agreements, KWS (Chair)
**Linus Kariuki**, Assistant Director, Species Conservation, KWS (Co-Chair)
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**Dr. Shadrack Ngene**, Ag. Wildlife Secretary- MoT&W / Principal Research Scientist, WRTI (Member)
**Dr. Joseph Mukeka**, Principal Research Scientist, WRTI (Member)
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**Daniel Ndolo**, Project Officer Terrestrial – Kenya
**Pamellah Dio**, Programme Officer – Kenya
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**Dr. Andrew Bamford**, Technical Specialist, Biodiversity and Conservation Monitoring

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**Dr. Drew McVey**, Regional Wildlife Crime Technical Advisor WWF, Kenya
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*Four Anonymous Reviewers from the IUCN SSC Pangolin Specialist Group*

### Technical Consultant

**Dr. Ronald K. Mulwa**
**Cover Page Photo:** Temminck's Pangolin @ TPP

PHOTO BY GUY COLBORNE

KENYA WILDLIFE SERVICE


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