

**1. Project Title:** Actions to Minimize Illegal Killing of Elephants in Tsavo Conservation Area, Kenya

**2. State of Report:** Final Report

**3. Names of investigators, affiliations and contact information:**

**(a) Principal Investigator**

Shadrack Ngene (PhD)  
Assistant Director, Wildlife Industry, Governance & External Linkages  
Kenya Wildlife Service

**(b) Co-investigator**

Fredrick Lala  
Senior Research Scientist-Tsavo Conservation Area  
Kenya Wildlife Service

**4. Project starting date:** 1 February 2014

**5. Anticipated project completion date:** 30 November 2014

**6. Overall and specific conservation needs this project addressed**

Tsavo conservation area hosts about 35% of the Kenyan elephant population. However, the same population has faced poaching incidents in the recent past where in 2012, about 32% of poaching incidents in Kenya were from Tsavo. This alarming rate is worrying and thus needs curbing if at all the elephant population is to grow. This can be done through intensifying security by increasing aerial and ground surveillance, increased intelligence information gathering and identification of sites that require new security patrol bases, and construction of simple patrol housing units at the new security bases.

## **7. Summary of goal and objectives**

The goal of this project was to minimize illegal killings of elephants in Tsavo Ecosystem. This goal was achieved through the following specific objectives:

- i. To determine the number and distribution of elephant carcasses in TCA
- ii. To ensure sustained security presence in the entire conservation area
- iii. To seal major ivory transit routes and borders
- iv. To identify new locations of security patrol bases
- v. Develop a documentary for creating awareness on the need to conserve elephants

## **8. Describe the specific actions taken to achieve each objective**

- i. Carried out aerial and ground security surveillance.
- ii. Undertook intelligence information collection.
- iii. Impromptu inspection of vehicles was undertaken together with the Kenya police along the Nairobi-Mombasa highway
- iv. Identification of sites that require new ranger patrol bases was undertaken (see separate report on this).

## **9. Activities that differ from the original proposed actions and reason for the change**

There was need to buy tents instead of uniports that were found to be expensive and could only accommodate a few rangers. Furthermore it was noted that it would hard to move the uniports from place to place when compared with the tents.

**10. Describe the conservation outcomes for elephants, wildlife, habitat and human communities, and list major findings and accomplishments to date.**

The security of elephants in Tsavo ecosystem including other wildlife and habitats improved during the project period. This was because of continued presence of security personnel in different parts of the ecosystems. Apart from deterring poachers and arresting others, they also kept away or arrested livestock owners grazing in the protected areas within the ecosystem. This secured the habitats for elephants and other wildlife as livestock is known to overgraze or browse, resulting to habitat destruction. Poachers are also known to steal from local communities. Therefore, by having increased presence of KWS rangers within the ecosystem, persons who double as poachers and thieves were kept away making the ecosystem safer for communities. The impromptu vehicle checks also reduced cases of theft along the Nairobi-Mombasa highway.

Key accomplishments include:

- (i) Identification of four new ranger patrol bases in the ecosystem (see separate report)
- (ii) Reduction of the number of elephants poached in the ecosystem in 2014 compared to 2013 by ...%

**11. Describe any problems discovered or occurring during this grant period**

There were no major problems encountered. However some motorists were proving difficult when we wanted to search their cars. The presence of the Kenya police helped to resolve the problem. During the project period, the price of fuel was high, making the teams to cover fewer kilometers than initially planned.

**12. Project success, short and long term goals used to evaluate accomplishments**

The project was successful.

**Short term goal:** Reduced number of illegally killed elephants

**Long term goal:** Elephant population increases due to reduced elephant mortality caused by reduced illegal killings of elephants

### **13. What is the “next step” for this project and its implications for future conservation actions**

The next steps include:

- i. Increasing funding of the security teams in Tsavo ecosystem to sustain the anti-poaching aerial and ground patrols
- ii. Nomination of Tsavo ecosystem for consideration for funding under the CITES minimizing illegal killings of elephants and other endangered species (MIKES)
- iii. Sourcing for funds to construct the identified new ranger patrol bases

The implication of these next steps for future conservation action is reduced illegal killings of elephants in Tsavo ecosystem.

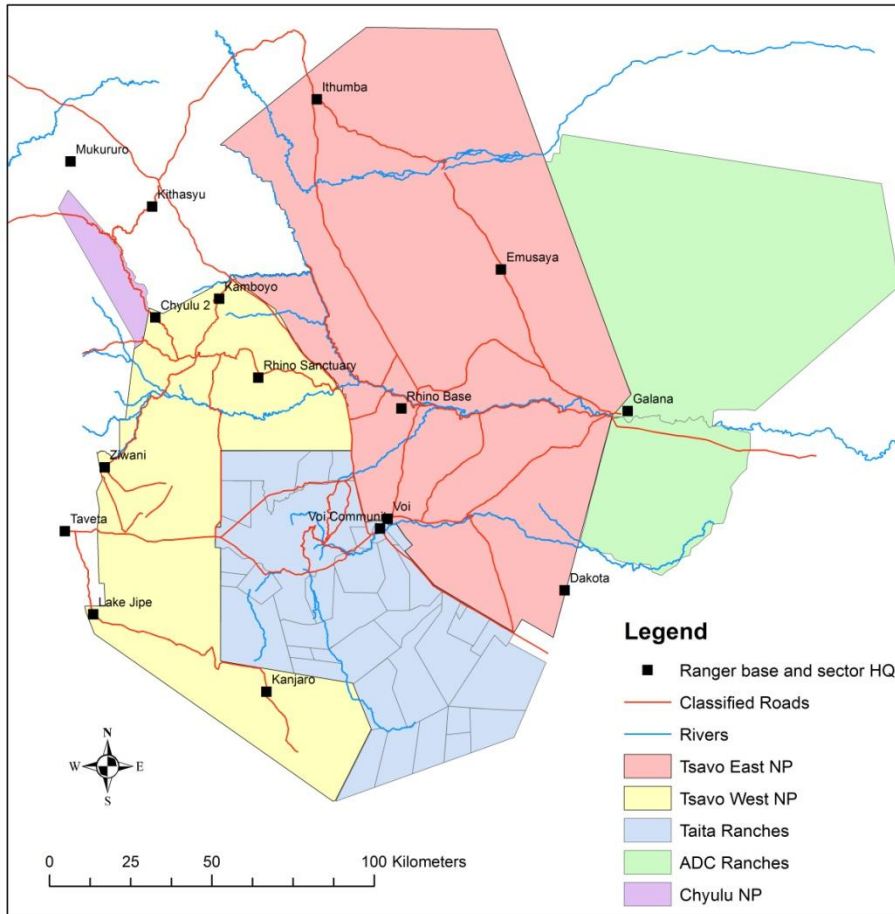
### **14. Summary the progress and results achieved:**

#### **(a) Aerial and ground surveys**

During the period under review, the following areas were patrolled by both aerial and ground team  
New patrol bases have been established within the Ranches mainly:-

- Amaka/Dawida
- Kuranze/Mbale
- Kasigau/Kalonzo

Aerial and ground patrols covered over 85% of Tsavo Conservation Area (Figure 1).



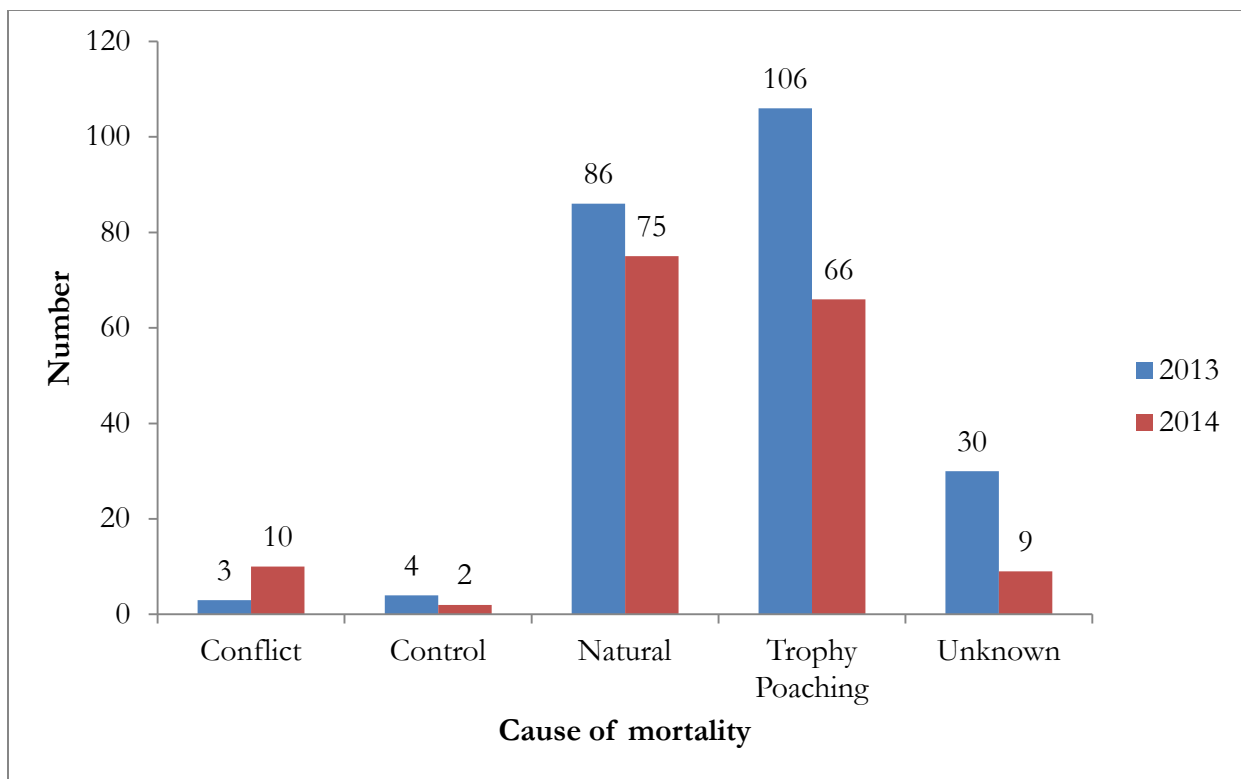
**Figure 1:** Map of Tsavo Conservation Area (TCA), the Study Area

**(b) Arrests**

A total of 305 arrests (169 cases between January-June and 136 cases between July and December) were made during the period. This was as a result of intelligence gathering, impromptu checks, aerial and ground patrols. These arrests prevented poaching of elephants by the arrested suspected. Therefore, this has contributed to reduction of the number of poached elephants in the Tsavo ecosystem.

### (c) Elephant mortality

Overall, a total of 229 and 162 elephants, were killed in Tsavo ecosystem due to various reasons as indicated in figure 2 below. This represents a 29% decline of the overall elephant mortality in the ecosystem over the period. Also, there was a decrease of elephant poaching in TCA (See Figure 2 Below). The categories classified as poached elephant cases include: gunshot, poisoned, poisoned arrow, and snared). Based on these categories, a total of 106 and 66 elephants were poached in TCA in 2013 and 2014 respectively representing a 38% decline in poaching during the period (Figure 2).



**Figure 2:** Elephant mortality in Tsavo ecosystem, a comparison between January-December 2013 and 2014 (Source: KWS Elephant Mortality Database, 2015)

### (d) Modeling suitable locations of ranger patrol bases in Tsavo Conservation Area, Kenya

We modeled suitable locations for establishing new ranger patrol bases in Tsavo Conservation Area (TCA). The modeling used Geographic Information System (GIS) and Remote Sensing (RS) datasets as well as expert knowledge. The datasets used included slope, land cover, distance to: river,

roads, existing patrol bases, and density of: livestock, live elephant, poached elephants, and water points. Apart from slope data that was in raster form, all the other datasets were first rasterized. The raster datasets were reclassified and then weighted. The model was run using the weighted values of the datasets. Three classes, less suitable, suitable and most suitable were used in the model. The modeling was implemented using ARCGIS 10 software, spatial analyst module of classify and reclassify. The modeled most suitable sites were located east of Sala gate inside Galana ranch; Nagasani area north east of Lake Chala; around Bachuma gate in Tsavo East National Park (TENP); and in some Taita ranches (i.e., Kamboga ranch, Taita ranch, Bura ranch, Washimbu ranch, Dawida ranch, Musamiti ranch, Wananchi ranch, Lualenyi ranch, Choke ranch, Mindi ranch, and Grazers). Areas with farms, settlements (rural and urban), water bodies, and steep slope were restricted as they are not suitable for establishment of ranger patrol bases. These areas occur at Chyulu Hills, East of Chyulu National Park, National Park, Taita hills, Yatta plateau, Galana, Tsavo, Voi and Tiva Rivers among others. Suitable sites were located along the Tsavo West National Park boundary with Tanzania, Parts of southern, Emusaya and northern sectors of Tsavo East National Park, and within South Kitui National Reserve. We conclude that TCA does not have adequate ranger patrol bases. We recommend that new ranger patrol bases be established at round Sala gate, Bachuma gate, Washimbu ranch, along the TWNP and the border with Tanzania, and North West of TENP (Gazi area). The ranger patrol base at Manyani gate should be upgraded with standard family houses for use by rangers at Rhino and Sangayaya bases. This is because the site is next to the main road and family members can easily get transport to their respective destination. In addition the site is close Manyani Law Enforcement Academy (LEA) clinic that families can use for medical purposes.

#### **15. List all organizations associated with this project and their roles in the project**

This project was implemented together with the Kenya police. The role of Kenya police was to assist KWS security teams to undertake impromptu checks of vehicles along Nairobi-Mombasa highway.

## 16. Financial Report

Table I below summarizes the funds approved by IEF and the amounts spend during the project period (January-November 2014).

**Table 1:** Budget approved by IEF and the amount spend during the project period

Budget item	Amount Requested from IEF (USD)	Amount Spend (USD)
Field patrols fuel 2 vehicles @ 100kms/day for 200 days @ 8km/liter of diesel = 5,000 liters * USD 1.24/liter	3,000	3,000
Field patrols lunches for 20 persons for 200 days @ USD 2.5 per day	3,000	3,000
Fuel for random security checks 1 vehicle for 1600kms/year @ 8km/liter of diesel = 200 liters * USD 1.24/liter	248	248
Lunches for random security checks 5 persons 200 days/year @ USD 2.5 per day		
AV-Gas fuel for light aircraft 3 drums per month for 10 months @ USD 518/drum	4,556	4,556
Fuel for intelligence information gathering 1 vehicles @ 100kms/day for 200 days @ 8km/liter of diesel = 2,500 liters * USD 1.24/liter	2,000	2,000
Identifying new security patrol bases per diem 10 nights for 2 officers@ USD 60/night	1,200	1,200
Fuel for identifying new security patrol bases 1 vehicles @320kms/day for 10 days @ 8km/liter of diesel = 400 liters * USD 1.24/liter	496	496
Purchase of tents 10 tents @ USD 350	3,500	3,500
<b>TOTAL</b>	<b>18,000</b>	<b>18,000</b>



**Annex 1:** Fuel browser supplying fuel purchase with funds from International Elephant Foundation (IEF) to the fueling station in Tsavo East National Park headquarters



**Annex 2:** Aerial patrol being carried out in Tsavo East National Park using a light aircraft. A herd of elephants is at the central part of the photo



**Annex 3:** Inspection of camel herders' camp to check whether they have hunting equipment



**Annex 4:** Patrol vehicles being repaired and serviced at Tsavo East National Park mechanical workshop using funds from IEF



**Annex 5:** Ndiandasa patrol base in north eastern of Tsavo East National Park using tents purchased with funds from IEF



**Annex 6:** Poisoned arrows confiscated at Tharakana area during a security operation facilitated with funds from IEF



**Annex 7:** Karisa Katana Karisa was arrested while ferrying two elephant tusks weighing 18 kgs from Voi River area to Samburu using motorbike Reg. KMCV 258 D



**Annex 8:** Cleophas Chengo Maluwa was arrested while in possession of two (2) elephant's tusks.



**Annex 9:** Suspects arrested at Sosoni area in Dakacha location of Kilifi County for selling poisoned substances on 13/05/2014. The poison is applied on arrows and used in poaching elephants.



**Annex 10:** Pieces of poisonous substances recovered from the above 4 suspects.



**Annex 11:** Suspect was arrested at Bungule area of Kasigau on 12/08/2014 while in possession of 4 pieces of elephant tusks weighing about Nine (9) kgs and one (1) python skin.

