



Human-Elephant conflict mitigation in the  
Kavango Zambezi Transfrontier Conservation Area  
(KAZA TFCA), Zambia  
**Half-Yearly Report**  
**June 2022**



**Kerryn Carter PhD**  
**Elephant Connection Research Project**  
**Kavango Zambezi Transfrontier Conservation Area**  
**Zambia**

**Supported by:**



**INTERNATIONAL ELEPHANT FOUNDATION**  
**CONSERVATION AND RESEARCH PROJECT GRANT**

**Half-yearly Report June 2022**

**a) PROJECT TITLE:** Human-Elephant conflict mitigation in the Kavango Zambezi Transfrontier Conservation Area (KAZA TFCA), Zambia

**b) 30<sup>th</sup> June 2022**

**c) Interim Report**

**d) Principal Investigator**

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**e) Project Start Date:** January 2022

**f) Grant End Date:** December 2022

## **2) Conservation needs**

One of the main objectives of the Kavango Zambezi Transfrontier Conservation Area (KAZA TFCA) is to establish transboundary wildlife connectivity throughout its protected landscape. The provision of corridors linking protected areas in the KAZA region will enable many of southern Africa's 300,000-strong elephant population to re-connect across fragmented habitats and function as a meta-population, as they will be able to safely move across the multiple land-use types that make up the KAZA landscape, thereby alleviating the impacts of habitat loss and climate change on otherwise isolated wildlife populations. However, old migration routes have since been settled by farmers, and most settlements are near existing water resources. This will inevitably result in human-elephant conflict over food & water sources that will be in the path of elephants as they re-establish migration routes.

Our research has enabled us to document frequent cross-border exploratory behaviours by elephants from Namibia, Botswana and Zimbabwe into Zambia, and use this information to identify and assist rural farmers that are impacted by elephant crop-raiding. Efforts to reduce elephant crop raiding in these transboundary areas is vital to facilitate coexistence between people and elephants, so that communities support efforts to re-establish traditional elephant movement pathways across country borders.

This project is an extension of the IEF-funded human-elephant conflict mitigation work that we have been undertaking in the Zambian component of KAZA TFCA since 2015, where we are using Poliwire electric fencing systems to assist subsistence farmers to reduce the impact of elephant crop-raiding. Our solar-powered Poliwire electric fencing systems have been very effective at stopping elephant crop-raiding wherever we have installed them and can reduce negative encounters between farmers and elephants. We have improved food security of subsistence farmers and secured their livelihoods by encircling fields and vegetable gardens with the single-strand Poliwire electric fencing system, which is a simple low-maintenance system that we have designed particularly for use by subsistence farmers. In Zambia, we provide support for HEC mitigation in an area encompassing up to 250 km along the Zambezi River with more than 25 Poliwire electric fencing systems in 4 geographical areas. Through IEF funding we are able to provide ongoing support to recipient farmers through annual refresher training and technological assistance.

We will continue to provide additional solar-powered poliwire electric fencing systems to those subsistence farmers who are greatly affected by elephant crop-raiding, especially now that we are recording a return of elephants to many areas in Zambia along the Zambezi River after a decade or more. Our program encourages a community approach to HEC mitigation so that we are able to encircle a number of farms with one fencing system wherever possible (cluster farming) helping to secure food sources and safeguard incomes of multiple subsistence farmers.

### **3) Summary of goals and objectives**

1. Provide five new solar-powered Poliwire electric fencing systems to subsistence farmers who are affected by elephant crop-raiding
2. Employ a Zambian national to provide on-site support, maintenance and training across the study area for recipients of Poliwire electric fencing systems
3. Provide support to the Zambian Department of National Parks and Wildlife to enhance their management of elephants and human-elephant conflicts

#### Actions taken:

##### Objective 1.

Equipment has been procured and we have installed one solar-powered Poliwire electric fencing system this half year around produce gardens that are threatened every year with elephant crop-raiding, with the remainder of the fencing systems to be installed in the coming months. The Poliwire electric fencing system we have installed this half-year will assist 16 farmers and their families by surrounding their collective produce gardens to deter elephants.

##### Objective 2.

We have employed a Zambian national on a one-year contract (Jan-Dec) and trained him as a technical field assistant to assist with the management of our 26 Poliwire electric fencing systems that are distributed across an area encompassing up to 250 km along the Zambezi River.

##### Objective 3.

We have provided support to the Dept of National Parks as we assist with the regular maintenance of Mosi-oa-Tunya National Park fence-lines that are adjacent to HEC locations in the Livingstone area, including recent training of Department staff in the management of the solar electric fencing that we have previously installed along sections of the National Park boundary.

### **4) Activities that differed from the original proposal**

N/A

### **5) Conservation outcomes**

This half year we have visited most of the 26 farmers who currently benefit from our solar-powered Poliwire electric fencing systems along 250 km of the Zambezi River in southwestern Zambia, to provide refresher training and guide them as they set up their elephant-deterrent systems for the 2022 vegetable growing season (April – Nov). We remain on-call throughout the season to provide technological assistance as needed.

This half year we have also helped additional farmers with a Poliwire electric fencing system to deter elephants from entering their produce gardens. Our first farmer recipient's this year are members of Ilubonda village in southwestern Zambia, who grow vegetables beside a natural water point next to their village that generally holds water throughout the dry season.

This natural water point is also attractive to elephants, which inevitably results in elephant crop-raiding as the elephants pass the produce gardens when they come to drink. Some of these farmers have abandoned vegetable growing beside this water point because of the threat of elephant crop-raiding, which has impacted their food supply and their family's nutrition. After witnessing the movement of elephants to this natural water point via some of our satellite tracking collars, we offered our assistance with a Poliwire electric fencing system to encircle multiple vegetable gardens (cluster farming), and the farmers gratefully accepted. By promoting cluster farming it allows for cost sharing and also sharing the responsibility of maintenance by multiple families.

#### Major findings and accomplishments to date:

At setup of the Poliwire electric fencing system at Ilubonda village, only 3 farmers had prepared and planted their produce gardens due to fear of elephant crop-raiding. However 16 farmers signed up to the program to avail of the opportunity to cultivate inside the poliwire fence-line, to be free of the danger of elephant damage. Many of the interested farmers are women, as in this village the produce gardens are mostly developed by women.

In an effort to promote sustainability of our interventions into the future, we have encouraged this group of farmers to start a 'Village Savings Group' whereby farmers protected by the Poliwire electric fencing system will contribute a small amount of money per month, which will be utilized for replacing fence equipment over future years. These self-managed informal Village Savings Groups are not new to rural communities in Zambia and are recognized by the Bank of Zambia as playing an important role in providing community-based financial services [https://www.boz.zm/press\\_statement\\_on\\_village\\_banking\\_savings\\_groups.pdf](https://www.boz.zm/press_statement_on_village_banking_savings_groups.pdf)

## **6) Impact**

The Poliwire Electric fencing system installed this half-year for HEC mitigation at Ilubonda village has 16 interested rural farming families, who have a combined total of 95 family members (10 male / 15 female / 70 children)

## **7) Problems during grant period**

Our planned program to collaborate with the NGO Wildlife Crime Prevention to use their ATV quadbike to conduct joint activities for monitoring the Mosi-oa-Tunya National Park fence in Livingstone has not been able to go ahead. Unfortunately the quadbike has not been mechanically operational this year for us to initially commence the program, and the issue is unlikely to be resolved in the foreseeable future. Despite this, we continue to assist the Department of National Parks and Wildlife in maintaining the National Park fence-lines as we have done previously, and during June 2022 we also held a training day for the DNPW fence maintenance team to train them in the management of the solar electric fencing that we have installed along some parts of the boundary of Mosi-oa-Tunya National Park.

## **8) Project success**

We aim to *mitigate the impact of elephants on the livelihoods of subsistence farmers*, which we are achieving by assisting additional subsistence farmers each year to deter elephants from entering their fields and raiding their produce, and by providing continued support to the growing number of recipients of our solar-powered Poliwire electric fencing systems to assist them in adopting this new cost-effective technology.

The goal of our elephant movement study is to *identify wildlife movement corridors within the Zambian landscapes of KAZA TFCA by determining elephant landscape utilization, and identifying impediments to elephant movements and threats to their survival that restrict connectivity with cross-border elephant populations*.

We have previously contributed elephant movement data generated by our satellite collars to the KAZA Elephant Sub-Working Group for the purposes of developing a Policy Brief to highlight elephant movement corridors and landscape connectivity needs across KAZA TFCA, for informing management actions by the five partner governments. A draft document has now recently been tabled for approval by ourselves and other members of the Sub-Working Group, which includes analysis of movement data from 227 elephants collared in the KAZA landscape (130 females/97 males), provided by eight collaborating organisations, including Elephant Connection. The policy brief will consist of overview maps of all available elephant movements over the last decade, with an interpretation of the most prevalent movement routes and likely corridors. Data coverage per country is: Angola – 14 individuals (9 males, 5 females); Botswana – 48 individuals (29 males, 19 females); Namibia – 76 individuals (21 males, 55 females); Zambia – 25 individuals (16 males, 9 females); Zimbabwe – 64 (22 males, 42 females). We will contribute further data that we have available once GIS processing has been completed. Once the draft policy brief is approved by the Sub-Working Group members, it will be presented to partner countries by the KAZA Secretariat as the first official output of the KAZA Elephant Sub-Working Group. The Group was officially endorsed by the 5 partner countries in June 2021 as a formal KAZA TFCA Sub-Working Group.

## **9) Next steps**

1) Now that we have a sufficient number of operational Poliwire electric fencing systems, we are engaging a local Masters student (Zambian) to collect data on their efficacy as an elephant deterrent, for the purpose of producing a peer reviewed publication.

As such, we would like to request re-allocation of part of the \$1200 budget line for the unsuccessful ATV Quadbike activity, towards support of the Zambian Masters student and their data collection activities (equipment, travel and subsistence), scheduled to commence in 2022. We also request re-allocation of part of the \$1200 budget line towards an increased budget for poliwire fence equipment, as the purchase cost of the fence equipment has increased this year, leaving us with no funds to purchase additional equipment items to refurbish existing fencing systems as planned.

2) Our work has become known so that we are now being contacted from people and organisations in other areas to introduce our HEC mitigation measures. As such, our area for HEC mitigation has expanded and we feel it is important to follow up on those gains and provide support to DNPW and farmers in relation to existing measures.

## 10) Human interest story

Introducing Silume Situmbeko (Samuel), a 65 year old woodcarver and subsistence farmer in Mwandi District, south western Zambia, who has been producing quality wood carvings in the area for more than 40 years.

Samuel's father and uncle were carpenters and he learnt the trade in his early years but at secondary school he enrolled in a woodworking class and from that point he developed a passion for wood carving.

He specialises in wildlife carvings, particularly elephants, on different forms of artwork such as traditional walking sticks (pictured) and table settings. Some of his artwork, in particular the traditional fly-switch used in official ceremonies, is sought after by the Senior Chief (traditional ruler) that governs the region, an honour that Samuel is very proud of.

Mwandi District is slowly developing its wildlife tourism potential as part of the Kavango-Zambezi Transfrontier Conservation Area, which he hopes will benefit his art business in the future. He has had a long-time aspiration of setting up an art centre on his property alongside the main road to showcase and sell artwork from the local community to passing tourists. However he has not yet been successful in attracting funding from the corporate world to assist with equipment and infrastructure, despite its obvious potential as the only community art centre in an area of developing tourism. To this end he continues to strive for his vision through his own means, as a small-scale agricultural farmer supplemented by his next fund-raising idea that will be to develop goat and chicken farming.



## 11) Organisations associated with the project & their roles

- Elephant Connection. Design and implementation of all activities
- Department of National Parks and Wildlife. Project partner providing support, advice and manpower.

**Financial report of International Elephant Foundation funds spent  
1<sup>st</sup> January – 30<sup>th</sup> June 2022**

**Grant payment Received 7<sup>th</sup> February 2022 USD \$10,970**

	<b>Budget Item</b>	<b>BUDGET \$</b>	<b>EXPENDITURE \$</b>
	<b>EQUIPMENT</b>		
1	5 x solar-powered Poliwire electric fencing systems to encircle cluster farms of subsistence farmers, plus additional equipment items to refurbish existing fencing systems	2000	1975.80
2	Laptop	1500	1498.05
3	GPS x 2	680	821.00
4	Phone x 2	480	373.75
	<b>EQUIPMENT SUBTOTAL</b>	<b>4660</b>	<b>4668.60</b>
	<b>PROJECT PERSONNEL</b>		
5	Principal Researcher & Research Assistant – Living exp	10000	5000.00
6	Technical field assistant (HEC)	1800	900.00
	<b>SUPPLIES</b>		
7	4wd Vehicle – 3012 km @ \$ 0.40/km Rate includes fuel & maintenance & wear and tear	2400	1204.80
8	ATV Quadbike - \$100 per month for Fuel and Maintenance	1200	0.00
9	Office, admin & communications	800	639.25
	<b>TRAVEL EXPENSES</b>		
10	Transport/ Lodging/ Food - for field activities	1080	773.50
	<b>TOTAL (USD \$)</b>	<b>\$ 21,940</b>	<b>\$ 13,186.15</b>