

Project Update: June 2023

The community in Jipe area is generally tolerant of elephants. However, the peaceful coexistence is faced with human induced pressures on the available resources. Competition over water, forage, and space overlaps across the three villages of Jipe. Crop damage, destruction of fishing baskets and obstruction of paths leading into the lake affect the three major livelihoods: crop farming, fishing, and livestock husbandry. The negative interactions have in the past resulted in retaliatory attacks on the elephants. However, the Jipe community area has been a refuge for elephants attacked and injured elsewhere. This can be attributed to the mild coexistence. Jipe hosts not fewer than 40 resident elephants; of these, some have recovered from spear and arrowhead injuries and have become resident to the area. Fear of elephants in the Jipe area is increasing among the local community. Particularly this is attributed to the increasing elephant numbers in the area, reducing fish populations from the lake, impacts of climate change, the unpredictability of rainfall and extended redundant droughts threatening farming as a livelihood. Combined all together, these factors impair the suitability and sustainability of current livelihoods.

With poor yield from farms and the lake, the people have turned to blame elephants for crop raiding. To remedy that, many crop farmers and fishers have turned to harvest wood for sale to tomato farmers from the adjacent Kajiado county, charcoal burning to supply fuel to Taveta town, clearing land for intensive agriculture by external investors and clearing bush so that elephants do not inhabit the space. The intensified bush clearing has further given a chance to the establishment of invasive species (*Prosopis juliflora*) whose dispersal is aided by livestock. Besides, Lake Jipe is surrounded by an economically low population.

To achieve the goals in the short term and instil a sense of human elephant coexistence, I aim to address the recently established gap of misinformation among community members, unreliable and unsuitable livelihood options, and lack thereof, inadequate awareness of elephant behaviour, climate change, restoration of a degraded Jipe ecosystem and creating a good relationship with the Kenya Wildlife Service through education programmes. I aim to use our Jipe primary school as the education resource centre to educate the community and pupils on matters climate change, restoration, and adaptability to hardships in this human wildlife conflict hotspot.

Objectives

- a. Determine the distribution of nutrients in the papyrus lake beds.
- b. Determine physiological stress variation between resident and non-resident male elephants between dry and wet seasons.
- c. Enhance environmental education awareness to the local community and motivate human elephant.

MSc Thesis Project (Investigating Nutritional Factors that Drive Elephant Utilisation of Lake Jipe, Tsavo West Ecosystem, Kenya)

- a. Determine the distribution of nutrients in the papyrus lake beds.

I established that the factors the nutritional that drove utilisation of Lake Jipe and the adjacent ecosystem were seasonally variant. Elephant interaction with the Jipe

community is significantly influenced by the changes in nutrient elements concentration on papyrus beds. Vegetation in the lake significantly higher concentration of macronutrients compared to vegetation on the adjacent land. The nutrients were established to be higher during the wet season compared to the dry season. This coincided with a higher influx of elephants around the lake during the wet season compared to the dry season.

The nutrients were also higher in the papyrus beds vegetation during the dry season compared to the terrestrial vegetation. Of the 12 sampled plant tissues of 11 species, most nutrients were concentrated in the roots of bulrush (*Typha domingensis*) which forms a high biomass of the papyrus beds of Lake Jipe.

I concluded that, the higher concentration of nitrogen, phosphorus and potassium in the lake could be influenced by leaching of fertilisers from the nearby agricultural farm. Therefore, elephants in Jipe interact with the community particularly in pursuit of the nutritious bulrush growing on the lake. This heightens in the peak of the dry season when bulrush in Tsavo West National Park is overly grazed, and the biomass reduced while the unprotected area remains with a higher biomass bulrush.

- b. Determine physiological stress variation between resident and non-resident male elephants between dry and wet seasons.

Physiological stress analyses are underway. There was a change in the methodology due to lack of power to keep samples frozen, we opted to use alternative method of preservation. Purchase and importation of equipment took longer than expected. Response from Mpala Research Centre also slowed down project advancement. We hope to proceed with the project from September 2023. I hereby request an extension of time to submit the final report.

January to March 2023

Environmental Education Programme at Jipe Primary School

Environmental Education programme was established in Jipe Primary school and two sessions allotted in the school curriculum. Wednesday and Friday afternoons were set for these lessons with pupils and teachers from Jipe Primary school. Six sessions were held with pupils from grade 1-4 and six sessions held with grades 5-8 pupils and teachers. Elephant behaviour, invasive species, soil erosion, land degradation and human-wildlife coexistence topics were covered in depth between January and March 2023.

Of the 12 sessions, 240 pupils and eight teachers were reached. Teachers were amused at the response of school attendance on the 2 days over that term. Parents reported of the interest that the programme had created on their children during focus group discussions held in April 2023. Teachers complimented the good work done during the programme and were actively engaged in the setting up of the lessons. Three teachers were shown how to use the projector, laptop and speaker and now can conduct such lessons independently. However, the school faces the challenge of having these sessions often due to the absence of a school laptop to run environmental lessons. Much appreciation to the Rufford's funded education programme in Jipe Primary school over that term.

April-May 2023

Six Environmental education sessions were held with pupils and teachers from Jipe Primary School that primarily covered the importance of elephants in the Jipe ecosystem. Localised examples were used, and the importance of peaceful coexistence emphasised during the lessons.

One hundred and twenty-seven community members were involved in the education awareness programme. Understanding the connectivity of the community to the environment was tackled in detail with partners from CoalitionWILD. Equipment funded by Rufford was used in these sessions. Themes of lawlessness, lack of awareness, ignorance were eminent during these sessions with the community. Threats specifically associated with the Jipe ecosystem were clear from the members of the public that desperately expressed their commitment to remedying the situation. The community requested to have more of such educational sessions in the area however I'm limited by resources to advance the intervention as may be needed.

Outputs

- Resident bulls Identification Catalogue
<https://1drv.ms/b/s!AtrjQV8jQGD9xBU2R871sNTeOZ8u?e=aszfH8>
- Nutrient analysis laboratory reports for wet and dry seasons



Environmental education session with Pupils and teachers at Jipe primary school in February 2023. © Zacharia Mutinda.



Zacharia leads Environmental education session with Grade 1to3 pupils of Jipe Primary, Feb 23. © Alphonse Maira.



Jipe primary school pupils playing football with elephants in the background before an Environmental education lesson in April 2023. © Anthony Ochieng, Save The Elephants.



A non-resident bull feeds on the shoots of bulrush on the shores of lake Jipe in March 2023. © Anthony Ochieng, Save The Elephant.



Pumba walks behind a flock of sheep in Jipe towards the lake on the 1st April 2023. © Zacharia Mutinda, Save The Elephants.



Zacharia Monitors Mikocheni, Ziwa and Kulia feeding on the roots of bulrush in the middle of Lake Jipe in March 2023. © Anthony Ochieng, STE.