

January 2020

Project Progress Report

The effectiveness of beehive fences on elephant crop-raiding frequency, and evaluating elephant movement and behavioural ecology in response to the beehive fence.

Introduction

Wild Survivors collaborate with Upper Kitete village which experiences high levels of elephant crop raiding. This is due to its proximity to the Ngorongoro Crater and a wildlife corridor connecting the Crater to Lake Manyara National Park. When conducting initial interviews in the area with local farmers, elephants were named the most problematic animal. Upper Kitete is a human-elephant conflict hotspot with need for intervention in order to establish a peaceful coexistence, protecting both the community and the elephants.

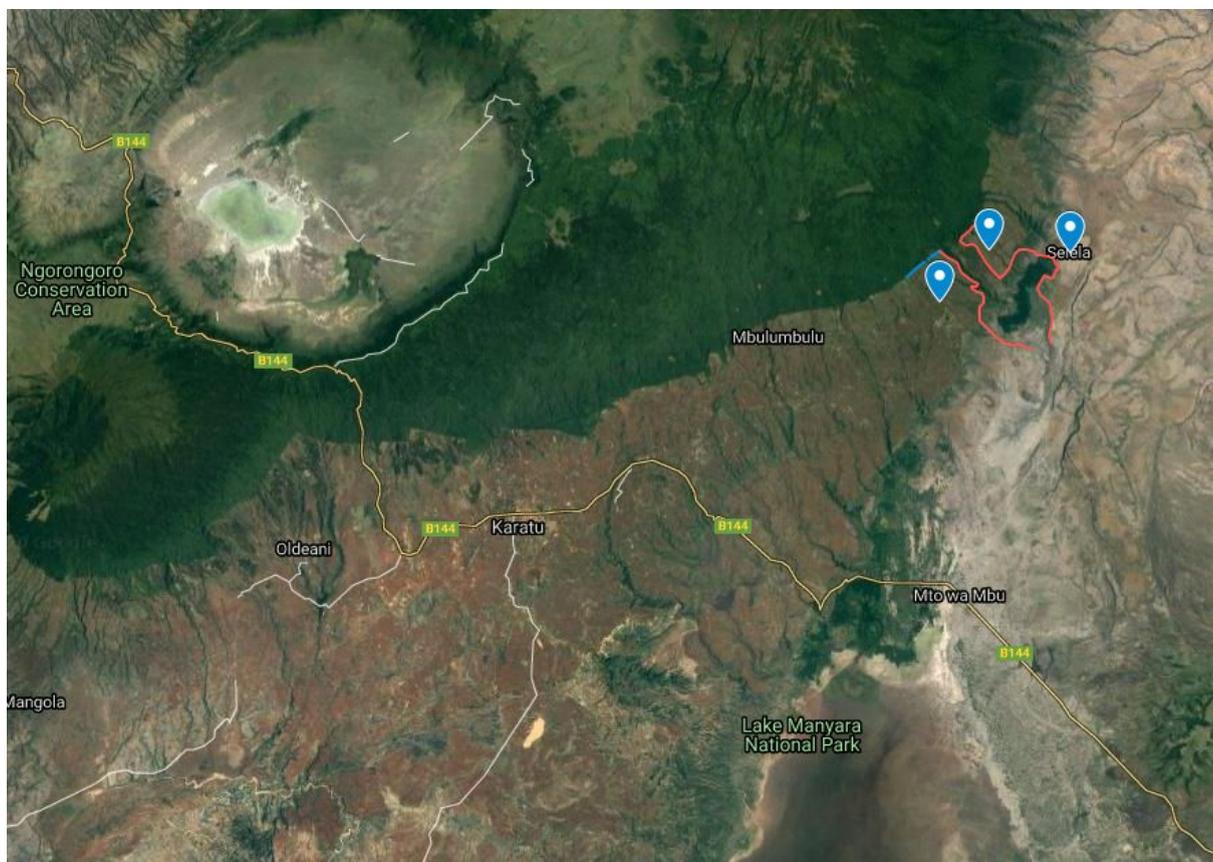


Figure 1. Map of the project site and beehive fence location

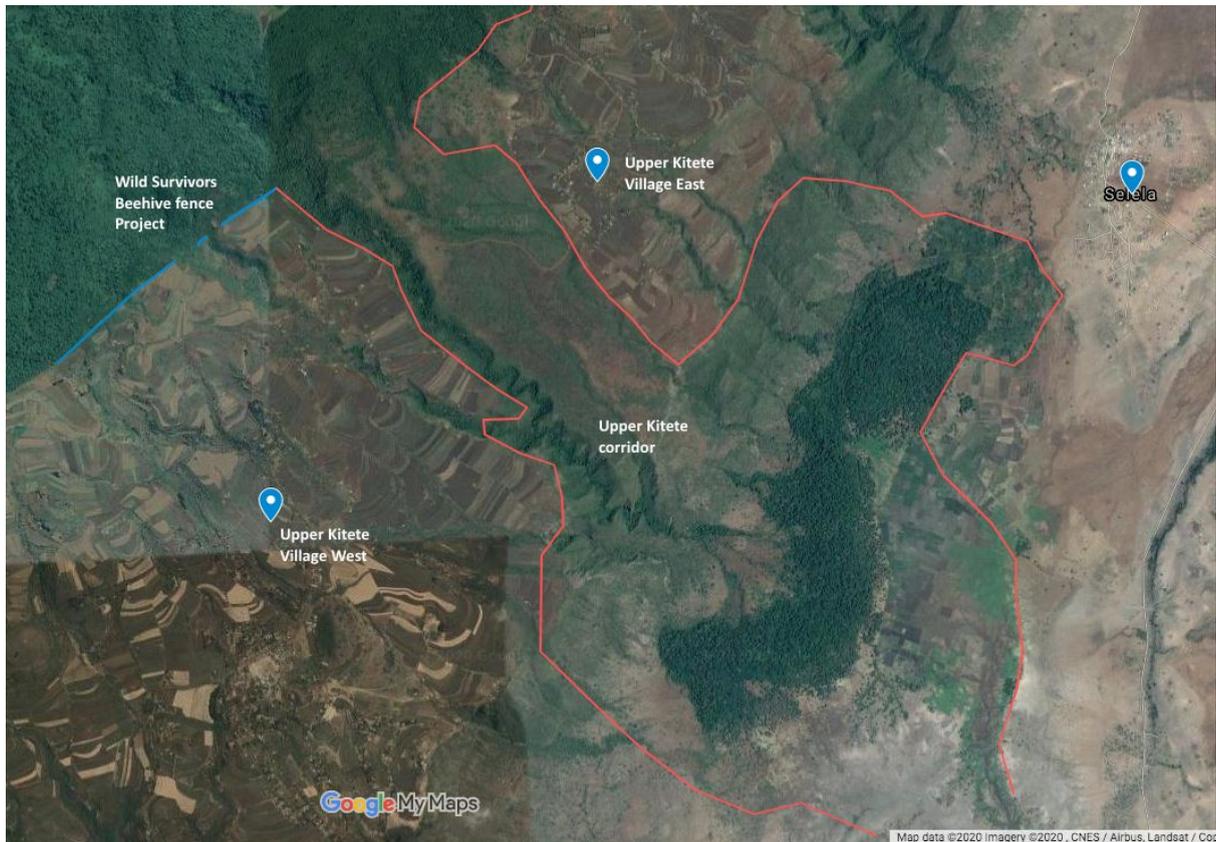


Figure 2. Close up map of project site

Key :-

Red outline = Upper Kitete wildlife corridor

Blue line = beehive fence

The Beehive Fence Monitoring Project began in September 2020. At this time Wild Survivors had established a 1.3km beehive fence consisting of x62 beehives along the Northern Highlands Forest Reserve, which directly borders farmland. At this stage in the project, 51.16% (32 out of 62) of the beehives were occupied. The beehive fence runs along land belonging to eight different farmers. The current (Jan 2021) length of fence is 1.74km consisting of 87 beehives installed along ten farm boundaries.

Please see images below of the beehive fence.



Summary of Project Activities

Camera Traps

Masaka, the Wild Survivors Data and Monitoring Co-ordinator, and Data Assistant, John, installed three camera traps funded by the Jana Robeyst Trust Fund. The cameras were placed in pre-assigned locations along the beehive fence, at elephant highway entry points to farms, and points with both low and high beehive occupancy. Camera traps have also been positioned within the wildlife corridor to help determine elephant use of this habitat in response to the beehive fence and other project activities. Masaka and John check the camera traps bi-monthly to collect images, check batteries and the general condition of the cameras.



-Data and Monitoring Coordinator John Masaka Masalu "Masaka", installing a camera trap in the wildlife corridor.



-Data Assistant John Massay deploying a Jana Robeyst Trust funded camera trap in a recently harvested farm at the beehive fence.

The cameras are providing critical insight into elephant behaviour in response to the beehive fence. We are examining behavioural responses and monitoring crop raiding frequency, raid times, raid offenders and impact on farms. Our data so far is showing 100% of fence approaches and raid attempts have been by male elephants. This corresponds with camera trap data from the wildlife corridor thus far, showing a higher frequency of matriarchal herds in the corridor. Our data has shown that elephants avoid breaking through the fence and instead continue to walk alongside the barrier. Elephants have demonstrated their curiosity in the fence, with images showing them investigating the new obstruction with their trunks. This is before attempts are made to reverse into the fence, with the aim to push through the wire which connects the beehives (please see images below). This tactic has also been seen with elephants trying to penetrate chilli fences.

Images showing elephant investigating the fence then reversing into it in an attempt to push it down, or break through it.



Camera trap Image showing a matriarchal herd using the wildlife corridor



Farm Guard Raid Reporting System

A key component to our data collection is reports from farm guards of elephant raids. As we currently do not have camera trap surveillance of 100% of the fence, receiving reports from the farm guards is key in allowing us to build a full picture of crop raiding activities. Masaka and the WS team have established good relationships with farm guards, who assist with reporting sheets to record crop raiding events. Farm guards also have a direct phone line to Masaka to report raids. Our Data Assistant, John, is based in the village and can respond quickly to reports of a crop raid. John visits farmland the following morning to pinpoint a raid or attempted raid location along the fence. He collects data on elephant footprints, time of raid or visit, and farmer response (if any), and then coordinates with Masaka who compiles the data sets for analysis.

Beehive Monitoring

Our Bee Guardian team is key in assisting in our data collection through reporting on hive occupancy, health, and general information about the bees. Individual hive occupancy is constantly monitored. One of our research questions is the importance of hive occupancy on elephant fence breakthroughs. With the help of the Bee Guardians, our data and monitoring team can understand the activities of the bees throughout the seasons along the fence, and allows us to correlate this with elephant fence breakthroughs.



- Image showing the Wild Survivors team monitoring the beehive fence

Qualitative Data Collection

Wild Survivors have dedicated a lot of time to building relationships with the local community. It is vital that we hear the perceptions of the local people on all project activities. Conducting interviews and questionnaires allows us to understand the challenges faced by the people of Upper Kitete living alongside elephants, and how we can best address them. We also gather data on farmer crop yields, through one to one communication. We aim to further understand the effect the beehive fence has on crop pollination and future yields.



- Image showing Masaka meeting with a local farmer in Upper Kitete