Bees for Elephants Program: A Tanzania Project Summary

By Lorna McCallister, March 22, 2022

As Butterfly Pavilion's Target Species Manager, I had the honor of traveling to Tanzania from February 24 to March 9 with Dr. Rich Reading, our Director for Research and Conservation, joined by staff from Tanzanian Elephant Foundation (TEF) and Bill Masure from Wildlife Protection Solutions (WPS). Supported by our partnership with the Katie Adamson Conservation Fund (KACF) this trip was to administer the Bees for Elephants Program which included building a beehive fence in Kisiwani and visiting other fencing projects in Kisemo and Kisaki, while also training local farmers and community members in the art of beekeeping and fence building on their own.

Now that we are back home, let's learn about the exciting work conducted to assist these Tanzania communities…

But first, some background on Bees for Elephants:

As rural communities grow in Africa and Asia, they are increasingly developing homesteads and croplands in areas that were previously open habitat that wildlife, such as elephants, migrated through. This has led to increased interactions between humans and wildlife, often leading to conflict. As elephants move through these transition zones, they often enter rural communities to raid crop fields and water stores. This threatens human lives and livelihoods, leads to physical conflicts, and increases negative community sentiments towards elephants and elephant conservation.

One human-elephant conflict mitigation tool that has been proven to be successful and sustainable is beehive fencing. Beehive fencing uses hanging beehives connected by a metal wire around crops and homes to deter elephants from entering areas by using their natural fear of African honey bees. When an elephant moves through the fence to access crops, it pushes the wire and shakes the connected hives. The hive disturbance alerts guard bees which then defend their hives by stinging the elephant around their sensitive ears, eyes, and trunk. African honey bees will readily send thousands of worker bees out to sting intruders, and elephants, which have a natural fear of these native bees, quickly learn to avoid the beehive fence. This minor nuisance to elephants spares crops and people from potential danger of these large mammals.

Butterfly Pavilion, with its partners, supports building bee fences as a mitigation tool to not only protect people and elephants, but also to support pollinator conservation. As an extra benefit, farmers can harvest honey, wax, and pollen from the hives in the bee fences and either consume these products themselves or sell them to others, thus enhancing their livelihoods.

And now for details from our recent Tanzania visit:

2022 Tanzania Project

Constructing a New Beehive Fence in Kisiwani

Our first stop was Kisiwani where we were joined by members of the beehive fence group from two sub-villages, Njiro and Igoma, and worked with staff from the TEF to help build a fence to protect crop fields from elephants that move into their communities from Mkomazi National Park. The community is surrounded by the national park to the north and mountainous lands to the south, making it a natural movement corridor for elephants in the area. The TEF staff previously helped the group cement 100 metal poles into place a week before our construction day to ensure that the posts would be set to hold hives. 50 hives, donated by Butterfly Pavilion, were crafted by a carpenter, and transported to the community before this construction day.

Building a beehive fence truly takes a whole community of people, not only to physically build the fence, but also to manage the fence and agree upon its use.

Beehive fence group adding melted wax to hive frames and entrance to entice wild honey bees into occupying the hives

Helping cut and tie metal wires to the hives for hanging

Carrying heavy hives down the fence line to their positions

Stringing hives to fence posts and connecting them together with a trip wire

TEF's contracted beekeeper, Justin Mgeni, led the group in a training in Swahili to explain bees, beekeeping, and the beehive fence.

Within three hours of hanging the hives, two hives were already occupied with wild African honey bee swarms moving into the hives! Scout bees from other colonies were also inspecting other hives as potential new homes. Both the American and Tanzanian beekeepers were shocked by how quickly the hives were occupied. This created a great opportunity for the group to observe the bees closely while they were in a calm state, focused on entering their new homes instead of defending them.

The beehive group reported that by the next day, eight hives were occupied.

Adding Hives to the Beehive Fence in Kisemo

Next stop was Kisemo, where we added 29 empty hives to their 100 hives-long fence to protect crops from elephants that move in the area along a wildlife corridor that includes a large military owned forest.

A beekeeping/beehive fence training, "types of bees in a hive and their roles"

Moving four occupied hives onto the fence.

Pulling Honey from the Beehive Fence and Training in Kisaki

The African honey bees are very defensive of their hives (as you can see in the picture below). Opening a hive, when we visited another beehive fence near Nyerere National Park in Kisaki, was like unleashing a hailstorm of honey bees upon us! Thousands of stingers were stuck in our suits by the time we finished. Luckily our full suit protected us from getting more than a handful of stings between the four of us, but this impressive display of defense shows how beehive fences can easily scare away wildlife, even animals as big and intelligent as elephants.

Butterfly Pavilion donated five sets of beekeeping suits and gloves, smokers, and hive tools to the group so that they can safely manage the hives

Honey Sales – A bonus

Fresh honeycomb from the bee fences were used to train the group in honey extraction and bottling. Training sessions also incorporated lessons about how their honey. Each beehive fence group has their own account managed by TEF where the money from honey sales is deposited so that the group can eventually maintain the fence with their own income. The director of TEF estimates that within three years of fence construction, the communities should be self-sufficient in maintain the fence and selling their own honey.

Our last stop – Tinga Tinga

After visiting the three communities that we supported with fence materials and training costs, we traveled back to northern Tanzania to assess a TEF fence built in November 2021 in the TingaTinga community that was built to deter elephants from Amboseli National Park from entering their croplands. World Wildlife Fund funded a much larger 200 hive long fence constructed by TEF than the previous 41 hive fence built previously by a local lodge. The community is hoping to get assistance with adding more hives to extend the fence.

Conclusion & Next Steps

In conclusion, this two-week trip proved to be very successful. We met our partners from the TEF and the communities which we are supporting. A strong and durable 0.55 kilometers of beehive fencing was built in Kisiwani, 29 hives were added to the beehive fence in Kisemo, and a long and thorough beekeeping and honey marketing training was conducted for the beehive fence group in Kisaki.

Butterfly Pavilion is eager to increase funding for the project to lengthen the fence. In the meantime, TEF staff will continue to communicate with the community and monitor the success of the fence in defending against elephant crop raiding in 2022.

In the coming years, we will continue supporting beehive fencing in Tanzania to promote human-elephant coexistence.

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