The Best Defense is a Good Bee Fence

By Mario Padilla, July 31, 2019

At Butterfly Pavilion, we are passionate about invertebrates (animals with no backbone) and work to educate the public about conservation and education from habitats across the globe. This is necessary because many of these animals are often forgotten. Invertebrates tend to be small, hide in dark places and may trigger fears in many people. They are the foundation of countless food chains, control pests, pollinate our food, have vast research implications and are eaten by humans around the world. Making up 97% of the animal life on earth, with 1.2 million described species, they are the hidden heroes of the animal kingdom.

At Butterfly Pavilion, many of our scientists participate in research and conservation work around the world. One of the ongoing projects uses the power of honey bees to prevent human and elephant conflict in Africa and Asia by placing bee hives around small farms. These barriers, called bee fences include multiple bee hives connected by wires and suspended on posts. When an elephant tries to enter a farm, the elephant hits the wire, which shakes the bee hives and causes the bees to emerge and sting the

elephant. This work was pioneered by Dr. Lucy King and her colleagues at Save the Elephants and has been implemented in multiple countries across Asia and Africa.

Butterfly Pavilion has worked in Nepal, near Bardia National Park and in Tanzania near Serengeti National Park to incorporate beehive fences in these communities. Elephants travel at night from these national parks to find water, food, and in the process eat crops grown by humans. This causes a conflict between humans and elephants in these areas since humans are discouraged and upset at elephants for eating their food and destroying their fields. Historically, farmers have used simple barriers, fire, and loud noises to dissuade elephants from entering farms, with little efficacy. Elephants become accustomed to loud noises, break down barriers, and ignore hazing. Humans also put themselves at risk by encountering the elephants, as elephants become defensive when approached.

Bee fences are approximately 80% successful on preventing crop raids from elephants, and have additional benefits. Farmers can sell hive products like honey, wax, pollen and propolis, and the honey bees that populate the hives also aid in pollinating the crops the farmers are protecting, increasing yields. This makes bee fences a sustainable, natural and lucrative way to keep elephants out, which provides farmers with a strong incentive to maintain the fences and promote it to other farmers.

Butterfly Pavilion has trained approximately 60 community members in Tanzania and Nepal to start a bee hive on their farms, and has introduced the idea of using beehives to prevent human-elephant conflict. Many community members had been directly impacted by elephant conflict, up to and including the death of a local farmer. The trainings included: installation, feeding, queen identification, adding room for growing hives, protective equipment, smoking the hive, disease/parasite identification and management, frame construction, bee anatomy, bee behavior, bee physiology, and honey extraction. We taught portions of these trainings in a classroom setting and other portions in the field, where we able to handle bees in hives that had already been established in the community. Butterfly Pavilion will continue to work on this project to conserve elephants, promote beekeeping and to protect farmers.

This work has been done in collaboration with the Katie Adamson Conservation Fund and the Denver Zoo.