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PHOTO: LYNN VON HAGEN

The impacts of human–elephant conflict and the search for solutions in the Kasigau Wildlife Corridor, Kenya

Lynn Von Hagen,¹ Simon Kasaine,² Mwangi Githiru,² Bernard Amakobe,² Urbanus Mutwiwa,³ and Bruce A. Schulte¹

¹Western Kentucky University, Bowling Green, KY, USA

²Wildlife Works, Voi, Kenya

³Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya

▶ Simon Kasaine (left), inventor of the metal strip fence, oversees preparation of chili fence components. Photo: Lynn Von Hagen.



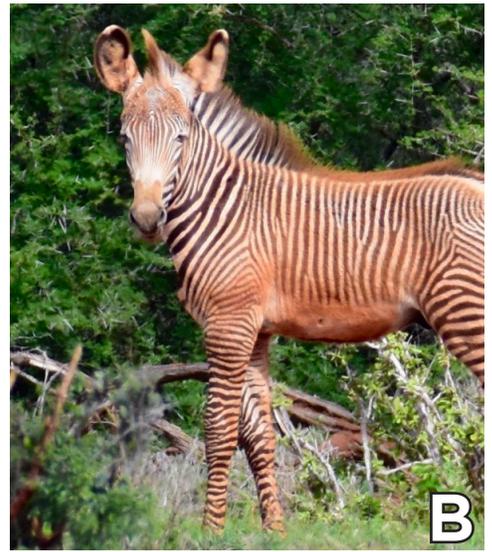
crop-raiding. The team has built catalogs of both the bulls and family groups in the area. Across Rukinga Ranch, over 100 bulls and 30 family groups have been identified. Using the special characteristics of each elephant (e.g., ear patterns, tusk features, and unique scars), over eight bulls thus far have been identified as crop raiders. Since bulls are predominantly the crop raiders in most African communities, it is no surprise that all of the active crop raiding in the Sasenyi community is also attributed to bulls. As the catalog grows, we expect to continue to add many elephants and increase the demographic profiles of crop raiders in the area, which could help when assessing or designing the types of effective deterrents.

3. Searching for indicator species. Few ecological correlates have been investigated concerning assessing crop-raiding fluctuations, and our project hopes to determine if there are other species of wildlife that could serve as indicator species. Elephants and most other herbivores move seasonally in response to resource availability, so species population densities can constantly shift. We are investigating if any species' population fluctuations might indicate periods when crop raiding might intensify. To achieve this, we established six driving transects in the Kasigau Wildlife Corridor in which we take data for each animal sighting, such as number in group, sex, and age. Thus far, we have recorded over 80 different species, and over 5,000 individuals. In the coming seasons as we continue to track species, we will be statistically comparing our population numbers during crop-raiding seasons to reveal if any species could give early warnings to

increasing frequencies of crop raids.

4. Assessing impact of elephants on trees. Another potential ecological warning sign (correlate) of increased elephant raiding could be the damage levels that elephants inflict on trees. Elephants are generalist herbivores and prefer succulent grasses when in season. However, when the dry season arrives and resources become scarce, they turn to foraging on trees and can severely damage trees by stripping bark, breaking branches, and pushing over trees. Some of this behavior occurs year-round as elephants like to rub against trees and bulls sometimes knock them over as a territorial display. To investigate this potential correlate, we selected 240 elephant-favored trees over the same six routes established for wildlife transects and recorded information on each, such as diameter at breast height, overall tree height, canopy cover, and the levels of the three types of elephant signs: bark stripping, branch breaking, and felling. After our one-year re-checks we have already seen that over 75% of trees have increased or new types of damage, and continued surveys will allow us to examine the relationship between tree damage occurrence and crop raiding prevalence.

5. Climate smart agriculture (CSA) and community outreach. Areas close to the equator such as Kenya are experiencing variable rain patterns and prolonged drought due to climate change. It is more important than ever to work with communities to assess their current agricultural shortfalls and prepare them for impending changes. Addressing these chal-



A) Image from a camera trap of a crop-raiding elephant, showing ear markings that are used for identification. **B)** One of the many species encountered on wildlife transects, a four-month-old critically endangered Grevy's zebra. **C)** Volunteers assist the field team by laying out measurements for the constructions of the deterrent fences. **D)** Volunteers assess the footprints from a herd of elephants that passed through the study area. **E)** A recently bark-stripped tree that was tagged for the project. **F)** The first volunteer team poses with some of the project staff and community farmers in front of the region's namesake, Mt. Kasigau. Photos provided by Lynn Von Hagen.

lenges can make huge strides towards combating rural poverty in communities that struggle to coexist with crop-raiding animals and other forms of human-wildlife conflict such as predators that prey on livestock. By increasing stable livelihoods through teaching CSA techniques, communities will be less devastated when elephant deterrents fail to protect their farms. Assessments of the soil composition conducted in Sasenyi last year have revealed a severe lack of nutrients essential for higher crop yields. Our project has established a strong tie to the local community by visiting and supporting the school of the farmers that lie adjacent to the protected area. We hope to introduce new farming techniques to the community, as well as to conduct workshop programs that teach farmers about the array of deterrent techniques available and the importance of elephant conservation. The scientists from the project partnered with the Earthwatch Institute, which provides citizen scientist volunteers to assist with data collection and the community projects,

fostering positive relationships with local people while educating the participants about the ecological drivers of crop-raiding and the importance of elephant conservation.

Conservation of elephants and the mitigation of HEC are complex issues that require a holistic approach tailored to individual communities. Successfully devised deterrents are not useful unless they are affordable and available to the communities that desperately need them, and those needs can change geographically. Our team's work towards assessing elephant deterrents that are effective in the Sasenyi community while searching for other ways to predict when raids are eminent are vital to protecting livelihoods for people and for facilitating the conservation of elephants. We are achieving those efforts by working with native people, the best path towards discovering ways in which people that occupy the same areas as elephants can find productive ways to coexist.



PHOTO: LYNN VON HAGEN

FOR MORE INFORMATION

- For complete information on the project, [click here](#).
- To join the project in Kenya on an Earthwatch Institute Expedition, [click here](#).
- Follow our project on Facebook by [clicking here](#).
- To donate to our project through the International Elephant Foundation, [click here](#). Then, select the program name as “Elephant Deterrent, Behavioral Responses” and in the comment section, type “ESAK Field Support.”