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PHOTO: LYNN VON HAGEN

Chai, Chapati, and Coexistence

The essential role of community engagement in elephant conservation

Lynn Von Hagen

Auburn University, USA

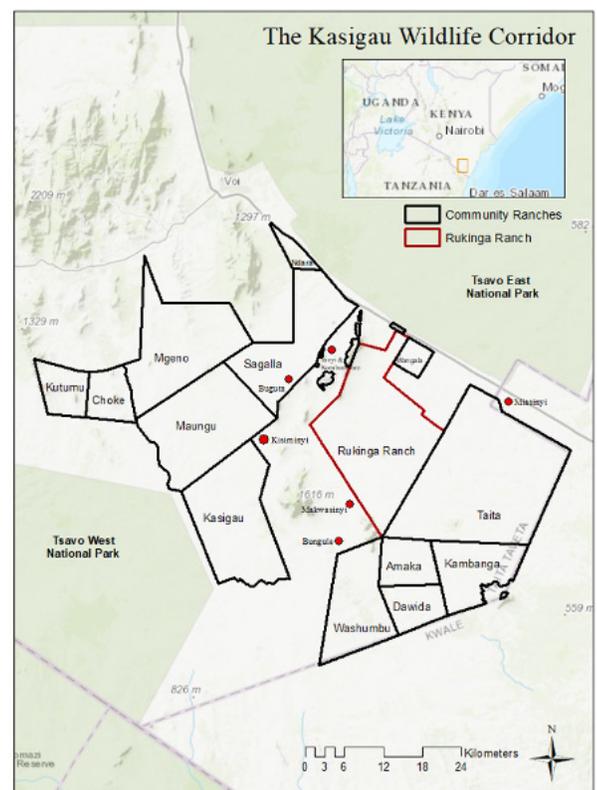
As human populations continue to swell and elephant populations decline, innovative solutions are needed to facilitate peaceful human–elephant coexistence, and both elephants and people need to be a part of the solution set. Despite the popularity of elephants, their habitats and very existence are threatened by poaching, habitat loss, and retaliatory killings. Though sometimes underrepresented as a substantial threat to both people and elephants, negative encounters continue to rise as people and elephants compete over resources. Climate change fuels these interactions as droughts can leave both people and elephants in need of reliable food and water sources, and fluctuating growing seasons make crop losses from foraging wildlife devastating for farming stakeholders. Conservationists, research scientists, and local stakeholders continue to work towards equitable solutions that benefit people and elephants.

JEMA introduced you to our [research team's work in the Kasigau Wildlife Corridor of Kenya](#) in the July 2019 issue, and our project has been continuing to grow and expand since 2016. As part of an interdisciplinary collaboration led by Dr. Bruce A. Schulte of Western Kentucky University (WKU), Dr. Mwangi Githiru of [Wildlife Works in Kenya](#), and Dr. Urbanus Mutwiwa of the Jomo Kenyatta University of Agriculture and Technology, we are expanding our research goals and study area. Joining our field scientist team of Simon Kasaine, Bernard Amakobe, and myself, we are welcoming graduate student Sophia Corde of WKU and Drs. Chris Lepczyk and Sarah Zohdy of Auburn University (AU) as investigators. As part of the [Earthwatch Institute's Elephants and Sustainable Agriculture in Kenya project](#), our team has worked with volunteers from across the world as part of an immersive research experience. Volunteers help collect data, observe wildlife, and learn about what rural communities experience living near wildlife. Our efforts continue to be supported by the [International Elephant Foundation \(IEF\)](#), our respective universities, Wildlife Works, and many former volunteers. We have partnered with those same volunteers and IEF to create a feeding program at a local school in our study area and have been providing lunches and water for over 700 students. Research conducted through AU will take some of the findings from our experiences with the

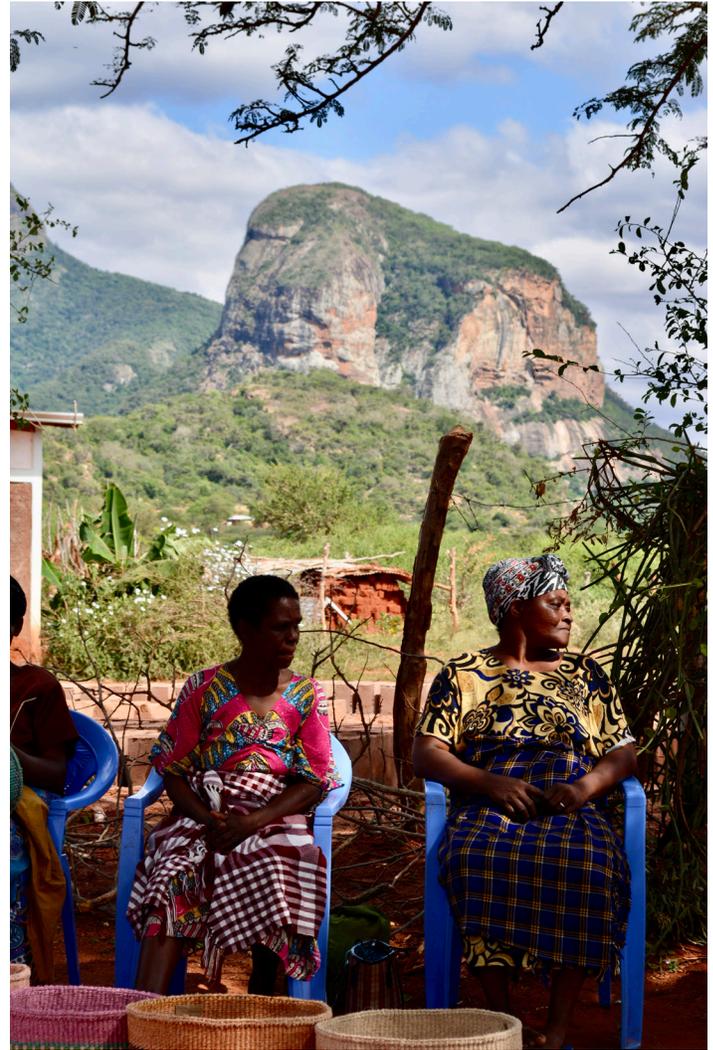
people and wildlife of the Tsavo Ecosystem of Kenya and expand into more villages to explore the human dimensions of what it means to live with elephants.

Human–elephant conflict and coexistence is largely driven by crop-raiding. Elephants leave protected areas and venture into farms to search for nutrient-dense crops. Farmers that own land near parks or areas of wildlife refuge are particularly susceptible to these incursions and are often met with the challenge of trying to safely keep a massive elephant out of their fields. Researchers have attempted to find deterrent methods that are practical and effective, but no one technique has emerged as a ubiquitous solution. Our own project has seen success from a newly assessed metal strip (Kasaine) fence, but we also found that some techniques respond better to certain environmental conditions than others. Combine this challenge with the extreme intelligence of elephants and their ability to adjust to non-negative stimuli, and you can envision the enormity of the challenge of mitigating crop raiding.

Mitigating the impact of elephants seeking forage in rural farms can be accomplished in several ways. Early warning devices can alert farmers to elephants nearby so they can coordinate to defend their farms. Some farmers already guard during the harvest season, and human presence is usually successful at frightening away elephants. However, farmers and/or elephants can become injured or killed in these dangerous interactions. Stationary fencing or other deterrent methods that use lights, sounds,



The Kasigau Wildlife Corridor lies between Tsavo East and Tsavo West National Parks and is home to the country's largest elephant population of 12,000+ individuals, which move between the parks through community ranches. The research team's home base is Rukinga Ranch Wildlife Sanctuary.



LEFT: A local farmer shows off the hand-crafted slingshot that he uses to scare away elephants. He has been chased by elephants many times and was once even trapped in his home while trying to scare away elephants. He loves farming though and never tries to harm the elephants. He wants to continue farming and just wishes the elephants would go elsewhere to eat. **RIGHT:** One of the many basket weaving groups in the Kasigau Wildlife Corridor framed against Kasigau, the largest mountain in the area. The groups are supported by **Hadithi**, a community-based organization that assists the groups with training and raw materials, pays fair market value for their handicrafts, and established access to international markets. Photos by Lynn Von Hagen.

smells, or some combination thereof remain the safest and most reliable methods, but challenges still remain. Rural farmers may have never received information about some techniques, but more importantly, few may have the resources to purchase and maintain such methods.

Engaging with local communities located near wildlife refuges where conflicts are common is a key part of understanding this complex issue and for devising holistic solutions. Evaluating each community's unique socioeconomic circumstances, perspectives, and their attitudes and resilience to sustained wildlife presence is an important first step. Management solutions encompassing indigenous knowledge have become more prevalent, demonstrating the need for collaborative solutions that engage

local people before assuming other methods used in the past or in other regions might be broadly applicable. Local people may be more familiar with their elephant populations, their patterns of movement, and the types of elephants that are labeled as "troublemakers." Using this information to form collaborative community-based conflict management plans engages stakeholders who can often end up as stewards of the environment when they feel like their input is valued.

When the means to provide a livelihood for their families is challenged, farmers often take their concerns to their local government or wildlife agencies, or seek compensation for incidents. Some agencies may have limited power or resources to intervene, and compensation or



Farmers and local chiefs or elders communicate about when and how elephants move through community lands. Local people are a valuable source of information about their respective elephant populations. Photo by Lynn Von Hagen.

insurances schemes have been plagued by fraud or inefficiencies. However, programs like what our partners at Wildlife Works in Rukinga have devised incorporate stakeholders into decision-making processes, provide jobs and educational opportunities, and educate the community on the importance of conservation. Its success and expansion demonstrate that equitable and sustainable solutions for both people and wildlife can thrive.

Making elephant presence and crop raiding less impactful is key to keeping events less contentious when other mitigation methods are not viable. Excluding elephants completely from an area is unlikely (and has negative consequences for elephant populations and ecosystems), so helping communities become more resilient should be incorporated into any management plan. Some of the ways to accomplish this are by creating alternative incomes, making sure that farmers have sound farming practices and engaging with communities on education about how to live safely with elephants.

Many rural villages living with elephants have few

livelihood alternatives, leaving farming as the only means of income and sustenance. Climate change is challenging farming at the equator by creating unreliable growing conditions, and this traditional profession may become less sustainable in the future. By providing capacity-building and access to alternative livelihoods, NGOs and government agencies can help build resilience for farmers when crops are compromised and make elephant presence less contentious. Empowering women to create cooperative groups can also help provide security by teaching new skills, generating another revenue stream for households, and building social relationships.

Improving crop yields, planting crops that are less attractive to wildlife, and maximizing water retention are other ways to reduce the impact of crop raiding. Years of drought and mono-cropping have made soils in our study area deficient in essential minerals. Climate smart agricultural methods involve a suite of techniques designed to increase crop yields in sustainable ways. New plant varieties can be introduced that are resilient to drought and can

provide better variety and nutrition for families. Adding fertilizer to soil is rarely practical or affordable in rural villages, but turning plant remains into the soil or getting creative with ways to restore nutrients is another way to improve the soil conditions. Pesticides are expensive and also rarely used, but integrated pest management techniques can help prevent losses from insect infestations. Elephants also have preferred forage and will avoid crops such as chilis and lemons, which can be planted as buffer crops or to create new income streams. Most rural farmers lack electricity and running water, sometimes having to haul their household water from afar. Thus, educating farmers on new techniques to maximize water retention when the rains come will help both crop success and households. One trade-off in increasing crop yields is these improved farms may attract wildlife, so these efforts need to be part of a holistic plan for managing elephant presence.

General education about living with elephants and how to manage elephant incursions is another important way to reduce the severity of crop-raiding. Misconceptions about elephant behavior are common as well as the safest way to avoid negative interactions. For example, many people finding elephants in their crops emerge to scare the elephants away. Startled elephants can charge and harm people, and elephants that are panicked can run through fields tearing up fencing and trampling plants, often doing more damage than if they had calmly moved away. Working with school children and community members to teach them about how to behave in the presence of elephants is important for villagers' sense of security. Learning about the benefits of the persistence of elephants in the environment is also important so that local people can feel invested in a healthy environment for the future. Finding ways to address the many driving factors that exacerbate negative human–elephant interactions may be daunting, but organizations across Africa are working to create environments where coexistence is more easily attainable.

One of the ways we hope to address some of these aforementioned challenges with our research is by engag-

ing with local communities through surveys and participatory modeling. Participatory modeling involves stakeholders and conservationists coming together to create a clearer picture, or mental model, of complex issues and to explore solutions. Each community deals with wildlife conflicts in different ways, and many have found coexistence possible and even benefit from the presence of wildlife. After many field seasons in Kenya, I am always amazed when I speak with local villagers at their tenacity, resilience, and generous spirit. I have lost track of how many times people have insisted I stay for a while, offered me some chai tea and my favorite: chapati, the hand-made flatbread that is a staple in Kenya. The most important part of these experiences are the friendships that are made, the laughs that are shared, and the trust that develops. The added bonus are the insights that are gained after hearing about their experiences. I am equally impressed at the depth of ingenuity that organizations like Wildlife Works use to create programs that address important socioeconomic conservation issues such as bush meat poaching and charcoal burning. Hearing stories from both groups gives valuable insight into the dynamics of these complex conservation issues and more importantly it provides hope that equitable solutions are possible.

The path to human–elephant coexistence can be quite circuitous. Rural poverty and lack of resources are the drivers behind many negative human–elephant interactions, and unfortunately, many communities live in fear of elephants and other wildlife. But coming together to understand the depth of the problem and the processes needed to address this far-reaching issue is an important first step. In every village where I am warmly welcomed, I find stories of fear and strife. But more importantly, I find courage, resilience, and a willingness to learn and move forward towards a future that includes the livelihoods of people and the preservation of wildlife. Like many of the complex issues facing our society, achieving human–elephant coexistence is a reality we can create; but sometimes it needs to begin with a chat, a cup of chai, and chapati.

FOR MORE INFORMATION

You can read more about Lynn's work by [clicking here](#), or contact her via email at lvonhagen@comcast.net.

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