

# The political ecology of human-elephant relations: comparing local perceptions of elephants around Chyulu Hills and Mount Kasigau in southern Kenya

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## Abstract

Although African elephants have a global appeal and donors especially in the global North significantly support their protection, rural African's attitudes towards elephant conservation are complex, and discouraging in certain locations. A proper understanding of the attitudes of people living around protected areas towards elephants is important for designing successful elephant conservation programs. Using a political ecology framework, this study assessed attitudes towards elephant among two communities living near protected areas in the Tsavo region of Kenya; the Kamba who live around Chyulu Hills National Park and the Kasigau Taita who live around Mt. Kasigau Forest, Kenya. I conducted in depth interviews with local residents, to examine the link between local attitudes towards elephants with the political-ecological history of extra-local effects especially the establishment and management of protected areas. The results show that residents around Mt. Kasigau had more favorable attitudes towards elephants than those around the Chyulu Hills National Park. This article concludes that local perceptions about elephants in the Tsavo region are political, they are embedded in issues of rights to livelihood, and access to and control over lands and resources. I argue that local meanings and concerns about elephants need to be integrated in the management plans of protected areas.

**Key Words:** elephants, Chyulu Hills, Mount Kasigau, conservation, political ecology, protected areas

## Résumé

Même si les éléphants africains jouissent d'une renommée mondiale et que leur protection est financée par de nombreux donateurs du Nord global, l'attitude des Africains issus de milieux ruraux envers la conversation de cette espèce est complexe. Cette dernière est même découragée dans certaines localités. En empruntant à l'écologie politique, cet article évalue l'attitudes des membres de deux communautés envers les éléphants. Celles-ci sont localisées à proximité d'aires protégées dans la région du Tsavo au Kenya et incluent les Kamba qui vivent près du Parc National des Collines Chyulu et les Kasigau Taita qui habitent la forêt du Mont Kasigau. À travers l'analyse d'entrevues détaillées avec les résidents locaux, l'article a pour but d'examiner le lien entre les attitudes locales envers les éléphants et l'histoire politico-écologique des effets extra-locaux, en particulier l'établissement et l'administration des aires protégées. Les résultats démontrent que les résidents du Mont Kasigau adoptent des attitudes plus favorables envers les éléphants que ceux qui vivent près du Parc National des Collines Chyulu. En conclusion, l'article suggère que les perceptions locales liées aux éléphants dans la région du Tsavo sont politiques, et imbriquées dans des problèmes de droit, de survie, et d'accès et de contrôles du territoire et de ses ressources. J'argue que les significations et préoccupations locales envers les éléphants doivent être intégrées dans des plans plus vastes de gérance des aires protégées.

**Mots clés :** éléphants, Collines Chyulu, Mont Kasigau, conservation, écologie politique, aire protégée

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## Resumen

Los elefantes africanos tienen un atractivo global. Aunque los donantes, usualmente del Norte Global apoyen significativamente a su protección, las actitudes de los africanos rurales hacia la conservación del elefante se mantienen desalentadoras en varios lugares. Por esta razón, es importante entender de manera adecuada las actitudes de las personas que viven alrededor de las áreas protegidas para poder diseñar programas exitosos de conservación de elefantes. Utilizando como marco, la ecología política, éste estudio evalúa las actitudes hacia el elefante en dos comunidades que viven cerca de áreas protegidas en la región de Tsavo, Kenia. Los Kamba viven alrededor de Chyulu Hills National Park y los Kasigau Taita que viven en los alrededores de la montaña Kasigau. Para este cometido, realicé entrevistas con los residentes de estos lugares para examinar el vínculo entre las actitudes locales hacia los elefantes y construir una historia político-ecológica de los efectos extra-locales, especialmente con relación al establecimiento y manejo de áreas protegidas. Los resultados muestran que los residentes alrededor de la montaña Kasigau tienen actitudes más favorables hacia elefantes que aquellos viviendo alrededor del parque nacional de Chyulu. Este artículo concluye que las percepciones locales sobre los elefantes de la región de Tsavo son políticas, ya que se fundamentan en temas de derecho a sus medios de subsistencia y acceso, control sobre las tierras, y recursos naturales. Argumento que las significaciones y preocupaciones locales sobre los elefantes necesitan ser integradas en los planes de manejo de áreas protegidas.

**Palabras clave:** elefantes, Chyulu, Kasigau, conservación, ecología política, áreas protegidas

## 1. Introduction

In Africa, elephants are a high profile species and the symbol of wildlife conservation: they are also perceived as "enemies of rural development" by people living around protected areas in elephant range states. At the dawn of the 20<sup>th</sup> century, when human population density was low, elephants roamed freely. Today, they have to compete for space with rapidly growing human settlements and other land uses (Kangwana 1996). Elephant numbers have also declined in the last few decades and this has raised concerns that the African elephant is facing the threat of extinction in the near future (Leakey and Lewin 1995). Between 2011 and 2013 approximately 100,000 African elephants were killed illegally for their ivory, which has a high commercial value (Wittemyer *et al.* 2014).

Elephants are intelligent social animals, and as a keystone species, they support the survival of all other species in the ecosystem. Elephants open up forests and dense bush land, thus creating mosaic habitats of bush and grasslands that support other species. In drought conditions, they dig holes in dry river beds to access water that is then used by other animals. Due to their migratory nature, elephants effectively disperse seeds through their dung, therefore enhancing plant diversity (Chapman *et al.* 1992; Kerley and Landman 2006). Elephants are also important for wildlife tourism, supporting the economy of many African countries. Not surprisingly, the decline of elephant population in Africa has caught the attention of local, regional and international state and non-state actors (Martin 2007). Efforts to save elephants have recently focused on agreements to control international trade in ivory, implemented through CITES (Convention on International Trade in Endangered Species of Flora and Fauna). Other measures include rendering elephant ivory valueless through symbolic acts of burning ivory. The world's first ivory burning event took place in Kenya in 1989 (Leakey and Morrell 2001). Other African elephant range states have followed Kenya's example with Gabon, Malawi, and Republic of the Congo burning their ivory stockpiles in 2012, 2014 and 2015 respectively. In April 2016, Kenya burnt the largest ivory stockpile in world history (5 tons). Critics have observed that these widely popularized ivory burning events often held in African capitals might also send a message to local communities that elephants have no value.

Global perceptions that tend to idealize the African elephant are often in sharp contrast with local perceptions of elephants. People who live in villages adjacent to protected areas encounter elephants in their day to day lives, and their opinions are based on their historical and current experiences. Elephants destroy crops that peasant farmers depend on for survival, they also injure and kill people who live near them. In Kenya, revenge killings of elephants by local communities are common (Western and Waithaka 2005). Local people have to contend with the reality of conservation policies implemented around protected areas. For the

most part, conservation policies in Africa prohibit local people from using traditional methods to mitigate conflict caused by charismatic species such as elephants and lions. These policies also often ignore the political-ecological contexts in which local resource use is embedded (Peluso 1993). The perception that local people are a threat to wildlife justifies coercive security measures in order to protect species considered threatened by poaching. When such policies fail, and species continue to decline, conservationists blame local people for their "ignorance" about the need for conservation (Schauer 2015).

Reports about the status of charismatic wildlife species by state and non-state actors highlight declining elephant populations without paying attention to the historical and socio-economic context of conservation (KWS 2013, 2014). For example, popular accounts of elephant decline in Africa rarely acknowledge the colonial roots of current conservation models on the continent. African nations inherited a colonial institutional and legal framework of wildlife conservation that emphasizes the ecological and economic benefits of wildlife while ignoring the "negative" social and economic impacts of conservation (Adams and Hutton 2007; Robbins 2004). Consequently, rural communities in Africa who live with elephants have complained that conservation authorities are more concerned with the plight of animals than people, enforcing protected area regulations that restrict access to critical resources such as grazing pastures. Research has also shown that conservation policies in Africa ignore local attitudes and assume that local communities are passive actors who should naturally support conservation programs imposed on them (Lee and Graham 2006; Sifuna 2009).

There are abundant studies on the relationship between humans and elephants (Gupta 2013; Hetfield 2006; Hoare and Du Toit 1999; Kioko *et al.* 2006). Some of these have outlined factors that influence peoples' attitudes towards elephants. De Boer and Baquete (1993), working around Maputo Elephant Reserve in Mozambique, found out that farmers who had suffered crop losses to elephants were more negative in their attitudes towards elephants and the reserve than those who had not. Some studies have found that the presence of tangible benefits promote positive attitudes towards elephants among people who still suffer losses from trampling (Gillingham and Lee 1999; Infield and Namara 2001). Other studies have maintained that variations in traditional cultural values are most important in shaping local peoples' perceptions of elephants. For example, Kuriyan (2002) conducted ethnographic studies among the Samburu pastoralists of Kenya and found that traditional beliefs about the importance of elephants were behind the community's support for elephant conservation, rather than monetary incentives.

Although considerable research has been done on human-elephant conflict in Tsavo (Gathungu 2015; Kasiki 1998; Omondi *et al.* 2004; Smith and Kasiki 2000; Waweru and Olelebo 2013) and on factors shaping local people's attitudes towards elephants (Kagwa 2011; Nyamwamu 2016), much less attention has been devoted to investigating the link between attitudes towards elephants and the political ecological histories of protected areas in southern Kenya. The political, ecological and social history of protected areas can be important in explaining people's attitudes towards elephants and landscapes (Brockington 2004; Carruthers 1995; Kideghesho *et al.* 2007; Njogu 2004; West and Brockington 2002).

This study investigated attitudes towards elephants among the Kamba, who live around Chyulu Hills National Park (CHNP) and the Kasigau Taita people who live around Mt. Kasigau in Kenya, using the lens of political ecology. Political ecologists ask that we consider events as part of historical and social processes, including relationships between humans and wildlife (Blaikie 1985; Neumann 1992). While these two locations have many geographical similarities, their social and ecological histories differ. The Kasigau Taita originally lived on Mt. Kasigau. They left the mountain voluntarily as their population increased in the early 20<sup>th</sup> century, and settled in the lowlands around the mountain (Kalibo and Medley 2007). On the other hand, some Kamba people living on the eastern slopes of the Chyulu Hills (CH) were forcefully evicted to pave the way for the establishment of CHNP in the 1980s and 1990s (Muriuki *et al.* 2011). Management regimes in the two places are also different; residents of the CHNP face strict park regulations and cannot legally access park resources such as grass and firewood. Around Mt. Kasigau, local residents have some level of access to resources in Kasigau forest. Both places are in the Tsavo Conservation Area, the biggest national park system in Kenya comprising of Tsavo East National Park (TENP), Tsavo West National Park (TWNP) and Chyulu Hills National Park (CHNP). Periodically, elephants stray from neighboring protected areas and enter Kamba

and Taita villages in search of pastures and water. The Kamba and the Taita face crop damage and there have been deaths and injuries caused by elephants.

This study was guided by two research questions:

1. What are the local perceptions of elephant conservation among the Kamba living near Chyulu Hills, and the Kasigau Taita living around Mount Kasigau, and what factors influence these perceptions?
2. Are there any differences in attitudes towards elephants among the two groups, and what accounts for these differences?

The first question sought to gain local views about elephants with a focus on how they impact local livelihoods, while the second was comparative, investigating the historical political ecology of people and their landscape resources.

## 2. Study site and methods

### *Study areas*

Research was conducted in five Kamba villages lying between the eastern boundary of CHNP and the Nairobi-Mombasa highway in Makueni County, and five communities around Mt. Kasigau, Taita Taveta County. The five Kamba villages are located on the eastern flank of the Chyulu Hills (CH) just northwest of Tsavo West (Figure 1). The Chyulu Hills are an important regional water catchment that provide water to local streams, and are the source of Mzima Springs which supplies water to the coastal city of Mombasa. CHNP is managed by the Kenya Wildlife Service (KWS), the government agency in charge of managing wildlife in Kenya. The study area is arid to semi-arid, receiving about 400-500 mm of rainfall during the long (March –May) and short rains (October-December). Crop failures and food insecurity are common in years with unreliable rainfall or drought. Food relief is offered to the poorest households in the region, especially in dry seasons. The dominant vegetation type in this area is Acacia-Commiphora bushland and grassland savannah. The area is a historic range for a variety of wildlife including elephant, rhinos, and different types of antelopes.

Most of the Kamba residents are "first or second generation immigrants" whose came into the area after 1960, from other Kamba counties (Machakos and Kitui) due to high populations, and land scarcity resulting from land reforms introduced during British colonial rule in Kenya (Muriuki *et al.* 2001; Tiffen and Mortimore 1992).

The Kamba are agro pastoralists, who practice small scale farming as well as rear cattle, goats, and sheep. The main crops cultivated are maize (*Zea mays*), green grams (*Vigna radiata*) pigeon peas (*Cajanus cajan*) and beans. About 15% of the local adult population is engaged in informal sector businesses such as operating small retail shops and restaurants (Republic of Kenya 2013). Residents with at least high school education have joined formal employment as teachers, nurses and are working in other government jobs. In order to escape extreme poverty, some residents illegally extract woody vegetation for charcoal burning and wood carving and khat- *miraa* (*Catha edulis*) from CHNP (Kamau and Medley 2014). Human-elephant conflict is common in the area, since elephants damage crops and occasionally pose a threat to human life (Kioko *et al.* 2006; Mosse 2003).

Mount Kasigau is located in Taita Taveta County in southwest Kenya and is one of the Eastern Arc Mountains, a chain of mountains that run northeast to south west in Kenya and Tanzania (Figure 2). Four Eastern Arc Mountains are located in Tsavo, Kenya and are commonly known as the Taita Hills. Mt. Kasigau rises about 1,600m above savannah plains and is in a corridor of private and communal lands between Tsavo East and Tsavo West National Parks (Kalibo and Medley 2007).

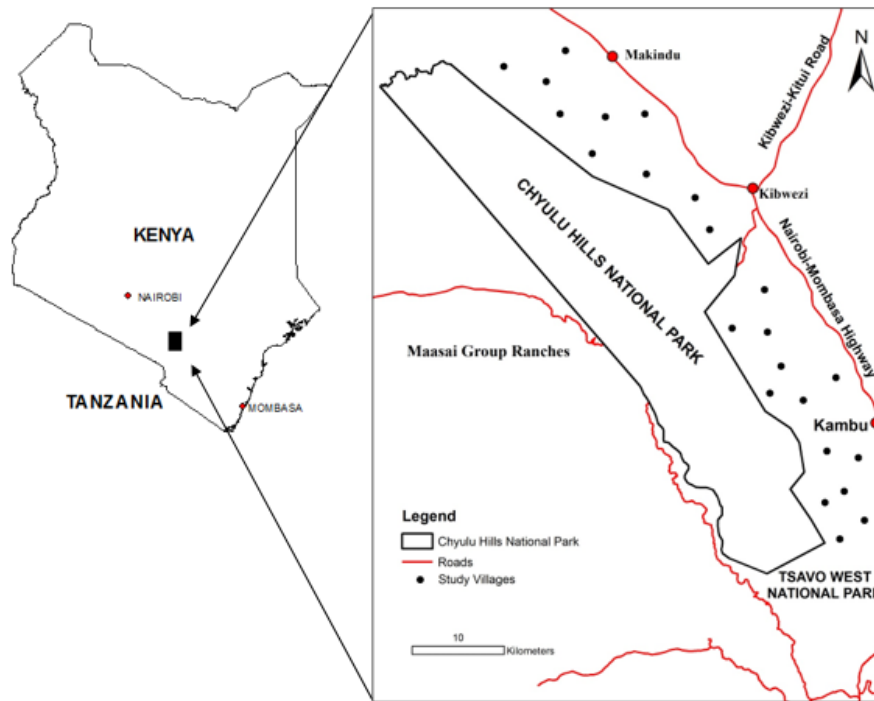


Figure 1: Location of study villages East of Chyulu Hills National Park, Kenya.

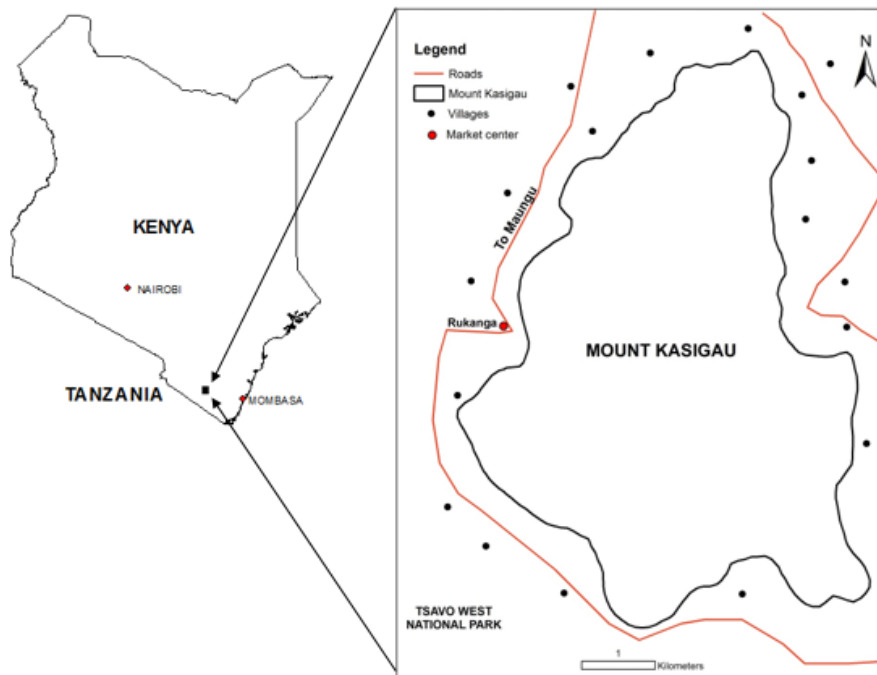


Figure 2: Location of study villages around Mount Kasigau, Kenya.

Mount Kasigau's 203 hectares of gazetted evergreen forest are managed by the Kenya Forest Service (KFS) in conjunction with local people. The mountain captures enough moisture from the Indian Ocean to support an evergreen forest above 1000m. However, the plains surrounding the mountain receive between 300 and 500 mm of rain per year and are therefore arid to semi-arid. Six springs around the mountain have been harnessed to provide drinking water to local people. The vegetation in the plains is mainly *Acacia-Commiphora* bushland (Kalibo and Medley 2007). It supports a variety of wildlife including elephants, lions, zebras, giraffes, ostriches, and antelopes of all sizes from the little dik-dik (*Madoqua*) to the large eland (*Taurotragus oryx*). Most of the bushland at the foot of Mt. Kasigau that provided habitat for wildlife is under small scale cultivation. Currently, most of the wildlife is found in nearby parks and communal ranches.

The majority of people living around Mt. Kasigau are the Kasigau Taita, a sub-tribe of the Taita ethnic group that mainly inhabits Taita Taveta County of Kenya. The Kasigau Taita, also sometimes referred to as Wakasigau, are predominantly small-scale farmers but they also keep cows, sheep, goats and chickens. They mainly cultivate maize, beans, cassava and pigeon peas. A section of the local people engage in informal business including small shops, restaurants and selling handicrafts while others have joined formal employment locally or in other parts of Kenya. The Kasigau Taita almost lost their ancestral land during the First World War. They were accused by the British colonial administration of collaborating with the Germans. They were violently exiled to Malindi on the coast in 1915, and were only allowed to return 22 years later in 1937 after missionaries petitioned the colonial government. According to local leaders this forced displacement caused the community to miss development opportunities, and it is the reason why the Kasigau Taita lag behind their neighbors in social amenities such as schools, hospitals and water supply. Human-elephant conflict is common in the region, and elephants damage crops and pose a threat to life (Kagwa 2011).

CHNP and Kasigau Forest are managed under different legal systems. The forest is managed by KFS under the Forest Act, 2005. This law governs the management of public forests in Kenya, allowing communities to utilize forests for activities such as cattle grazing and firewood collection with minimal fees. In contrast, CHNP is managed by KWS, under the Wildlife Conservation and Management Act, 2013. By this law, no human activities other than tourism are allowed in national parks. Local communities are not allowed to obtain resources from CHNP.

#### *Data and methods*

The purpose of this study was to understand the local perspectives towards elephants, and to understand the factors that shape these attitudes among people living around Chyulu Hills and Mt. Kasigau. The author conducted fieldwork in the two study sites between June and August 2015, and in December 2015. Further fieldwork was conducted in June and July 2016 using semi-structured questionnaires administered by trained research assistants. The fieldwork covered the ten villages mentioned above, stratified north to south along the eastern boundary of CHNP and in five villages around Mt. Kasigau. In-depth semi-structured interviews were conducted with 100 respondents in the ten villages; five men and five women from each ( $n = 10$  for each group, total = 100 participants). By design, this study had equal participation by men and women (Table 1).

I sought the help of local administrators (chiefs and assistant chiefs) to select participants from existing village groups that had a local focus such as self-help for farming and tree nurseries. Consideration was given to the spatial extent of village groups to ensure a broad range of experience with elephant conflicts were present. The selection of participants was intentional, to include people with different levels of income, education, and land holdings. Participants were asked for voluntary consent; they were also assured that any information they shared would not identify them as individuals or village members. Interviews with the informants involved a list of twenty questions that focused on their views on elephants and the histories of nearby protected areas. Participants were also asked about their interactions with the Kenya Wildlife Service (KWS) for the case of people living around CHNP and the Kenya Forest Service (KFS) around Mt. Kasigau. The questions were intended to assess respondents' attitudes and tolerance for crop losses from elephants and also evaluate how their attitudes relate to the management of protected areas.

I also asked for suggestions to promote coexistence between people and elephants. Interviews with individual informants lasted about one hour on average. Conversations were held in Swahili, and local research assistants helped translate from local languages to Swahili where necessary. Interview sessions were recorded and later transcribed, to ensure all information gathered was captured.

Age (years)	Chyulu Hills National Park		Mount Kasigau		Total
	Men	Women	Men	Women	
20-40	8	6	9	6	29
41-60	10	12	9	11	42
61-80	6	5	7	5	23
Above 80	1	2	0	3	6
	25	25	25	25	<b>100</b>

Table 1: Age group and gender of survey respondents in CHNP and Mt. Kasigau.

### 3. Results

#### *Attitude towards elephants in Kamba villages along CHNP*

The fifty interviews with respondents in Kamba villages revealed that crop raiding by elephants plays an important role in shaping local attitudes towards them. When asked about her views on elephants, a women lone farmer adjacent to CHNP illustrates the general perception:

Elephants are my biggest problem. Every year, I cultivate crops but I share the harvest with elephants. They wait until the maize is ready for harvest, then they come and eat almost everything. [June 6, 2015]

The majority of respondents reported that elephants are the major cause of human wildlife conflict around CHNP. Forty-six percent (n=23) of respondents said that elephants had entered their farms at least once between July 2014 and July 2015. The main crops destroyed by elephants were pigeon peas and maize. In the villages under study, crop raiding is mostly seasonal, elephants invade farms around the months of February and March and June and July when maize crops and pigeon peas are about to mature. This corroborates official reports from KWS which shows that incidences of human-wildlife conflict around CHNP are highest in the months of February and July (KWS 2008). The frequency of crop raiding and the extent of damage done by elephants to individual farms varied with the distance from the national park boundary. Respondents whose farms were less than one kilometer away reported more losses than those whose farms are located farther from the CHNP. The majority of participants reported that they tried different measures to prevent crop damage by elephants such as guarding their farms at night, erecting scarecrows, and planting pepper (*Capsicum annuum*) around their farms. They reported burning pepper and elephant dung at night, with the smoke believed to keep elephants away. No measure was a total deterrent to crop raiding and some farmers said they relied on KWS officials to drive them away when they invaded their farms. However, because of limited capacity, difficult terrain, and a high number of incidents, KWS officials are not able to attend to every crop raiding incident.

Lack of compensation for crop damage was important in shaping views about elephants around CHNP. Seventy-six percent of respondents (n= 38) mentioned that lack of compensation for crop damage reduced their tolerance of elephants. Respondents said that no farmer had received compensation for crops damaged by elephants despite filing compensation claims with the KWS. Some farmers reported that they had filed several in the previous two years. One respondent said:

I have filled compensation forms four times since 2014 and taken them to KWS offices but I have not received compensation. Recently, I made a call at the KWS offices and was told to continue waiting. [June 8, 2015]

It was clear that there was high expectation of compensation among local people around CHNP. The Kenya government passed a new wildlife law providing for compensation from wildlife damage or loss in 2013; The Wildlife Conservation and Management Act. Although, the law became operational in January 2014, we confirmed that funds to compensate human death and injury are obtainable, but not for crop damage (personal communication with the warden in charge of CHNP). The amount of money required to compensate every case of crop damage was astronomical, meaning it may remain an unfulfilled promise. There was no doubt that this has led to negative attitudes towards elephants and the KWS.

The perceptions of CHNP and its history also shaped local views of elephants around the park. Fifty-eight percent of respondents (n= 29) reported that the park's establishment increased the population of elephants within it. Sixty-four percent (n= 32) said in interviews that the park 's purpose was to create room for elephants. Others mentioned that elephants were translocated from other parks and brought into CHNP after it was gazetted. However, an inquiry with the KWS confirmed that no such relocation of elephants was ever done. Elephants occasionally move to CHNP from the neighboring Tsavo West National Park and Maasai group ranches in search of water and pasture. After the establishment of CHNP, movement into CHNP increased as elephants feel safer to roam where there are no human settlements.

The harsh experiences of eviction to pave the way for the establishment of CHNP and the loss of access to vital resources such as firewood and grass was found to be a cause of indifference to wildlife in general, and especially elephants. Fifteen out of the 50 respondents interviewed reported to have been evicted, they described how they suffered economic losses by losing fertile lands, structures such as houses as well as social disruption when they were forced to separate from their kin and neighbors. The evictions which occurred in various periods between 1990 and 2000 were coordinated by the District Commissioner of the then Makueni district. Armed personnel from the Administration Police branch and rangers from the KWS were deployed in the hills to ensure people were evicted. According to local accounts, some Kamba men resisted the evictions but were brutally forced into submission by the police. One elderly man, a retired teacher explained:

We had worked hard to build primary schools in the Chyulu Hills and the government sent its teachers to the schools. Our village was named "Canaan", after the biblical Canaan due to the fertility of the soils. During the evictions, we were not given enough time to move. We lost most of our livestock to wild animals, our houses were demolished by government forces. Those who had no means of transporting their food especially maize lost it to fire when granaries were set ablaze by security forces. When people see elephants on their farm they remember those brutal experiences. [June 10, 2015]

Attitudes towards elephants were also linked to the perception that local people do not share the many economic benefits that elephants bring. Seventy-four percent of respondents (n= 37) in Kamba villages said that they do not realize any benefits. They argued that revenue accrued from elephant conservation should be used to initiate projects that help local people such as providing bursaries to school children. One man said:



Our fathers used to kill elephants for food, but these days killing an elephant is illegal. When Jomo Kenyatta was president, game wardens would kill wildlife and the meat would be given to those who attended national celebrations such as *Madaraka* (Independence) day. That does not happen anymore. We know elephants brings money to the government, why can't the government use that money to fund development projects in this area? The government says that elephants are beneficial, but we have not seen those benefits here. [June 11, 2015]

Landlessness and extreme poverty among a section of the population around CHNP have contributed to the perception that the government cares more about elephants than people. The study revealed that this perception is driven by the so-called squatter crisis that partly resulted from the establishment of CHNP. After the evictions in 1990 and again in 2000, about 10 % of the evictees were not allocated any alternative land, mainly due to corruption and inefficiency among government officers in charge of the resettlement program. The Kenya government attempted to solve the squatter problem in 2005 by hiving off public land in Kiboko to issue it to squatters. Again, not all squatters were resettled in the new scheme. Those who missed out claim that the majority of those who were allocated land in 2005 were "powerful" individuals connected to local politicians who already owned land elsewhere. Some evictees, or their next of kin who have never been resettled, live as squatters in lands adjacent to CHNP (Figure 3). These squatters are extremely poor and encroach into the park to extract resources for their survival. Some engage in charcoal burning, wood carving and poaching. The squatter problem around the eastern boundary of CHNP has also been linked to land degradation around CHNP (Muriuki *et al.* 2011).



Figure 3: A squatter dwelling near the eastern boundary of Chyulu Hills National Park. June 12, 2015. Photo by author.

The relationship between local people and the KWS was also found to be important in shaping attitudes towards elephants in CHNP. The majority of respondents (74 %) mentioned that elephants are resented due to the many incidences of arrests and fines or imprisonment of local people found in the park burning charcoal, or extracting other resources. The local informants argued that some people are forced to seek resources in the park when elephants damage their crops, thus perceiving them to be the source of problems. They indicated that conflicts over access to resources were the cause of confrontations between

local people and KWS rangers who patrol the park. While the majority of informants praised KWS officials for their efforts to reduce crop damage by elephants around CHNP, they castigated them for being insensitive to local needs. This study also revealed that there was a general misunderstanding of park regulations among the local community. About half of informants were unaware that by law, nothing should be extracted from a national park and that KWS officials were mere custodians of wildlife resources. The majority participants referred to elephants as "*hao ndovu wa KWS*" (those elephants owned by KWS) during their conversations and this suggest that they did not consider themselves stakeholders in elephant conservation, but victims of their existence.

Historical conflicts over land and grazing resources between the agro-pastoral Kamba and their western neighbors, the pastoral Maasai, also influence attitudes towards elephants among the Kamba. Before the establishment of CHNP, the Kamba and the Maasai contested the ownership of lands on the eastern slopes of the Chyulu Hills. Respondents reported that since CHNP was established, KWS has been more tolerant of cattle grazing in the national park by the Maasai than the Kamba, who allegedly hunt small game for bush meat and also illegally harvest woody plants mainly of the genus *Acacia* in the national park (*Acacia tortillis*, *Acacia mellifera*, *Acacia nilotica* etc.). This situation has led to the perception among the Kamba that the Maasai are allowed to graze in the national park by KWS officials while the Kamba are harassed and arrested for the same offence. However, arrest records obtained by the author showed that more Maasai than Kamba herders were arrested for illegal grazing in 2014. KWS officials in CHNP denied any official policy of favoring the Maasai. However, the perception among the Kamba was widespread and hurtful to elephants, as illustrated by this remark by a Kamba respondent:

The government want us to co-exist with elephants yet it does not allow the Kamba to graze their livestock in the park. Since the government allows the Maasai to graze their livestock in the national park, it should extend the same favor to the Kamba. [June 18, 2015]

#### *Elephant proof fence and attitudes toward elephants*

Recently, KWS and the David Sheldrick Trust, a local conservation Non-Governmental Organization (NGO) have partnered to construct an elephant proof fence along the eastern boundary of CHNP (Figure 4). About 30 km of the fence has been constructed. Interviews with informants revealed that the frequency of crop raiding by elephants have reduced in villages already covered by the fence. Informants who came from these villages had more positive views about elephants and KWS than those villages that have not yet been protected. The majority of respondents said that the fencing project would be a lasting solution to the problem of elephants. They also added that the fence would curtail their access to the park to collect firewood, construction materials and other resources and they appealed for gates that will allow access to the park. One woman said:

I collect dry firewood from the park, if the fence is constructed, I will not be able to get into the park. I ask KWS to erect a few gates along the park boundary so that women can gain access to firewood. [June 19, 2015]

Since no extractive activities are allowed in the national parks by law, KWS cannot construct gates along the fence to allow access by local people. Although some participants were aware that no human activities were allowed in a national park and collecting any material from it was illegal, they considered their access to woody plant resources found in the park to be necessary. Eighteen out of the 50 respondents confessed to have had either grazed their animals or cut grass in the park for their animals. It was also reported that the park was the only remaining source of trees such as *muvingo* (*Dalbergia melanoxylon*) which is an important raw material for wood carving. While the long term impact of the fence on local livelihoods was not immediately clear, some participants expressed concerns that lack of access to resources in the park will negatively affect people's attitude towards elephants and other wildlife.



Figure 4: A farmer whose plot borders Chyulu Hills National Park explains the benefits of the new elephant proof fence. June 21, 2015. Photo by author.

#### *Attitude towards elephants in Taita villages around Mount Kasigau Forest*

Fifty respondents were interviewed in the five villages around Mt. Kasigau forest. Forty-four percent of respondents (n= 22) reported that elephants had trampled on their crops at least once between July 2014 and July 2015. Crop raiding by elephants mostly occurred when crops were ready for harvesting. This is twice a year due to the bimodal rainfall pattern in the study area; in the month of February and in July and August. The most common crops damaged by elephants are maize (*Zea mays*) (Figure 5), cow peas (*Vigna unguiculata*) and pigeon peas (*Cajanus cajan*). Since most elephant visit takes place at night, crop guarding is mostly done by men who usually pay most attention to their own farms. Elephants also damage fruit trees such as mango and banana and villagers said this discouraged people from planting fruit trees. During fieldwork, very few fruit trees were observed in villages around Mt. Kasigau. The frequency of raiding varied among villages and individual farms. Those along traditional elephant migration routes were more frequented by elephants than those further away. Villagers narrated that, during the dry seasons when water is scarce, elephants rely on permanent natural springs that occur in the villages at the bottom of Mt. Kasigau. During the night when villagers are sleeping, elephants come to drink water in the springs, after quenching their thirst, they enter the farms but always leave them before dawn. The respondents reported that various strategies are used to prevent crop damage by elephants and other animals. These included forming vigilante groups to guard the farms at night, planting pepper (*Capsicum annuum*) as hedges around farms and burning elephant dung. However, these measures were said not to be effective. The majority of the small scale farmers around Kasigau expect assistance from KWS rangers to drive out elephants whenever they invade their farms.



**Figure 5: Maize plants in a village at the bottom of Mount Kasigau. January 7, 2016. Photo by author.**

Attitudes towards elephants among the Taita people in villages around Mt. Kasigau were for the most part influenced by crop raiding. Out of the 25 women informants in this area, 18 women said that elephants were a threat to their livelihoods. They lamented that it was futile to plant fruit trees in the farms because they would be damaged by elephants, which they said contributed to poor human health in the area. One woman whose village was reportedly the most besieged by elephants said:

Majority of us in this village are farmers but our children do not eat fruits because our paw paws and mango trees have been damaged by elephants. Fruits are very expensive in the market and some of us who are unemployed cannot afford to buy fruits every day. [June 27, 2015]

The history of human settlements in the villages was found to be a significant influence on local attitudes. There was a general agreement among the majority of participants that when their ancestors lived on the mountain, elephants and other wildlife utilized the bushland below it without much interference from humans. The majority of respondents said that the major reason for settling in the bushland was the decreasing size of farms on the mountain as human population increased. Oral histories from participants indicate that human-elephant conflict began when people left the mountain and started living in the bushland. Due to the awareness of this history, most respondents in villages around Kasigau said that they have a moral obligation to co-exist with elephants. One of the interviewees, a village elder, explained:

I was born in Ndomokonyi in the mountain. We left the mountain with our cattle, cleared the bushland and erected huts in this village. There were plenty of elephants, buffaloes, dik-diks, and many other types of animals. Most of the animals migrated to other areas when we started

living here. So wildlife belongs here, elephants come from the bush to drink water in streams. Although they destroy our crops, we co-exist with them. [June 23, 2015]

Land tenure conditions and access to resources are top political issues around Mt Kasigau. The majority of respondents who are smallholder land owners do not have title deeds for their land. They blame the government for delaying the issuance of title deeds to residents of Kasigau. There was a general feeling that past and current governments have marginalized the Kasigau people. Most were of the view that key local resources including wildlife and minerals benefit "outsiders" instead of locals.

Although KWS does not have a camp nearby, respondents said that they usually made calls to their officers whenever elephants invaded their farms. The rapid access to mobile phones by rural residents in Kenya has dramatically increased communication between farmers and public officials. The majority of respondents said that oftentimes, KWS rangers responded quickly to their calls and drove away elephants back to the park. However, the majority of respondents accused KWS of allowing people from other parts of the country to graze their animals within TWNP while they don't extend the same privilege to local people. This perception among local people contributed to negative attitudes toward elephants. Seventy-six percent of respondents (n=38) mentioned that people from the Somali and Maasai communities bring large herds of livestock into TWNP park and this reduces the amount of vegetation available. They argued that lack of browse in the park encouraged elephants to move out of it and raid local farms. However, KWS officials in TWNP denied the allegation that they allowed animals into the park and insisted that all livestock entered illegally. Local people in Kasigau has taken several measures to mitigate crop damage by elephants. These measures include chili fences and lighting the farms at night.

The people of Kasigau had contrasting views about the KWS and the KFS. Forty percent (n=20) of respondents reported that they had a good relationship with KWS officials. Eighty-four percent of respondents (n= 42) reported that they had a good relationship with KFS officials who are responsible for patrolling the gazetted Kasigau forest. Generally, there are more local grievances that involve wildlife than forests. Issues that mediate relations between KWS and local people such as human-elephant conflict and access to grazing pastures are very complex because they determine livelihoods conditions.

#### *The impact of REDD+ projects on attitudes towards elephants*

Kasigau region is among the first locations in the world where the REDD+ idea has been implemented. REDD+ (Reducing Emissions from Deforestation and Forest Degradation) is an international scheme to assign financial value to carbon stored in forests, whereby forest owners receive money (carbon credits) as an incentive to conserve forests and therefore to combat climate change (Corbera and Schroeder 2010). The Kasigau Corridor REDD Project (KCRP) was commissioned in 2009 and has a project life of 30 years (KCRP 2011). The aim is to avoid emissions of over 48 million metric tons of carbon dioxide over the project period through reducing forest degradation and discouraging cutting down of trees in private lands for charcoal burning (KCRP 2011). The project is run by Wildlife Works, an American based private company which according to its website, uses "innovative market based solutions to the conservation of biodiversity".<sup>2</sup> Money generated through carbon financing has been used to fund community development and wildlife conservation projects around Mt. Kasigau. These projects include classrooms and desks for local schools, scholarships, water provision and employment. The project has created jobs such as greenhouse attendants, conservation rangers, and foresters. The conservation rangers and foresters supplement the efforts of KWS and KFS rangers by preventing charcoal burning, illegal cattle grazing and bush meat poaching. The project has also promoted the development of small businesses. A good example is an eco-clothing factory which offers employment to local people in Kasigau. The REDD+ project was also reported to attract visitors to the area, especially foreign researchers.

<sup>2</sup> [http://www.wildlifeworks.com/redd/The\\_Kasigau\\_Corridor\\_REDD\\_Project\\_Phase\\_II\\_VCS\\_PD\\_v14.pdf](http://www.wildlifeworks.com/redd/The_Kasigau_Corridor_REDD_Project_Phase_II_VCS_PD_v14.pdf) (Accessed March 24th 2016).

Informants indicated that the REDD+ project has increased public participation in the management, protection and conservation of natural resources in Kasigau. This has for the most part influenced positive attitudes towards elephants. However, some local people and non-local academics are skeptical about the REDD+ project. There is already a heated debate among scholars about the impact of KCRP on land tenure and rights to livelihoods. Chomba *et al.* (2016) have argued that KCRP reinforces past land injustices in Kasigau since carbon revenues accrue mainly to wealthy land owners. In a rebuttal, Githiru (2016), claimed that KCRP is redressing past land injustices. Despite the weaknesses of KCRP and its unintended consequences, 58 % (n= 29) of respondents indicated that the project has positive impacts on livelihoods and wildlife conservation especially of elephants. Forty-two percent (n=21) said that KCRP was hurting the poor, especially those who depended on charcoal and bush meat for their survival. KCRP rangers arrest local people who engage in charcoal burning and bush meat poaching.

#### *Comparing attitudes towards elephants between villages around CHNP and Mt. Kasigau*

Attitudes towards elephants differ among the Kamba living near the eastern boundary of CHNP and the Kasigau Taita living around Mt. Kasigau. Generally, positive attitudes and tolerance towards elephants were higher among the Kasigau than the Kamba (Table 2). The two cultural groups are small-scale farmers who plant similar crops in a dryland environment and experience almost similar magnitudes of crop raiding by elephants. Forty-eight percent (n= 22) of respondents in CHNP said that elephants have a serious impact on the food security in their households while thirty percent (n=15) of respondents in Mt. Kasigau gave a similar response. Seventy-four percent (n=37) of respondents in villages along CHNP reported that elephants do not benefit their community compared to 36 % in villages around Mt. Kasigau.

For the most part, the different histories of settlements and establishment of the two protected areas is the basis for the difference in attitudes towards elephants. Residents in four out of five villages covered around Kasigau forest narrated that they voluntarily moved from the mountain to the bushland between the 1960s and 1990s, due to decreasing farm sizes as their population rose. Only residents in one village reported having been ordered by the government to leave the mountain. The people living in this village at that time left without resistance. In contrast, accounts by respondents in villages adjacent to CHNP indicated that people were forced to leave the park by armed government security personnel.

There was also a stronger sense of ownership of the forest, mountain and landscape resources among people in Kasigau as compared to CHNP. People around Kasigau also considered themselves key stakeholders in the conservation of the forest and wildlife, including elephants. Respondents in CHNP suggested that elephants and the park are viewed as threats to local livelihoods. When talking about the park, some respondents in Kamba villages used the words *huko kwa* KWS (that place belonging to KWS). In contrast, the Kasigau did not refer to the mountain or forest as belonging to KFS despite the forested mountain being gazetted and under their management. Accounts from CHNP also indicated that some people still "feel the pain of eviction" and these feelings affect their general attitude towards elephants and conservation.

Dependency on local woody plant resources had a significant effect on local people's attitudes towards elephants in CHNP and Mt. Kasigau. More people reported relying on grass and woody plants obtained illegally from CHNP. In contrast, people around Mt. Kasigau obtained these resources from their farms, the bushland at the bottom of the mountain and Kasigau Ranch where they graze their animals for a small fee. Kasigau Ranch is owned and managed by the Kasigau community through elected leaders. Community members are involved in making major decisions affecting the ranch. Around CHNP, respondents reported more conflicts between themselves and state agencies, especially the KWS, than in Kasigau. These conflicts occur when local people are arrested by KWS rangers as they trespass into the park to obtain grass for their livestock, charcoal, or woody poles for construction.

Issue	Number of respondents out of 50 in each location.			
	Chyulu Hills N. Park		Mout Kasigau	
	Number	%	Number	%
Elephants have entered my farm in the previous 6 months (July –Dec 2015)	23	46	22	44
Elephants have a serious negative effect on food security in my household.	24	48	15	30
Incidences of crop raiding by elephants have increased in the last 10 years.	30	60	20	40
My community does not benefit from elephants.	37	74	18	36
Lack of compensation for crop damage shapes my views towards elephants.	38	76	33	66
The relationship between local people and KWS or KFS affects attitudes towards elephants.	40	80	32	64

Table 2: Comparing attitudes towards elephants between residents of CHNP and Mt. Kasigau.

Several community projects with a conservation component have been initiated in Mt. Kasigau. The most prominent one, the Kasiagu Corridor REDD + project has financed initiatives in villages around Kasigau such as greenhouses for womens' groups and desks for schools. Although only a few people have benefited individually from the project, such initiatives have promoted positive perceptions towards wildlife and made local people more tolerant of elephants. However, some people in the community fear that the project is eyeing local land and might take it over from people lacking title deeds. Although a similar REDD project around CHNP has been mooted, it has not yet materialized. Respondents from villages along the eastern boundary of CHNP complained that their appeal for support for community projects has been ignored by "donors." One local leader of an existing village group commented:

I am the leader of a bee keeping self-help group. We have put forward several proposals for support on various community projects to donors but none has been funded. Other people who live near a national park and face crop depredation by elephants get a lot of support from donors, we don't know why we don't get support. [June 29, 2015]

While we could not verify this particular claim, it was clear that narratives by the majority of respondents in CHNP show that they have high expectations of receiving financial benefits from the government and other sources, as an atonement for human-elephant conflict. There was a strong perception that benefits such as support for income-generating projects have the potential for alleviating poverty. When such expectations are not met, local enthusiasm for wildlife diminishes, especially elephants.

The study also noted a special bond between the Taita, the Kasigau forest and other landscape resources. Narratives from respondents about their mythology and religious practices indicated that the Taita have deep local ecological knowledge about the connection between the mountain, forests, rivers and

wildlife. It was clear that despite their problems with elephants, they regarded them as very important to their culture and customs. However, the same cannot be said about the people living around the Chyulu Hills.

#### 4. Discussion

The relationships between protected areas and people who live adjacent to them have received significant attention from geographers and anthropologists (Adams and Hutton 2007; Anderson and Grove 1985; Neumann 1998). Their findings have suggested the complexity of people-protected area relationships in landscapes where protected areas are nestled within dense human settlements and agriculture. Often, the majority of people who live in these landscapes depend directly on natural resources for their livelihoods (cultivated crops, forests, wildlife). Due to protected area regulations, communities living adjacent to protected areas face restrictions on the access to natural resources they need for survival - woody plants, pasture for domestic livestock, etc. (Lepp and Holland 2006). Exclusion from protected area resources, crop damage and livestock depredations by wild animals influence their perceptions towards wildlife (Ite 1996; Paraskevopoulos *et al.* 2003). A growing body of literature has indicated the difficulties of achieving species protection where local peoples' hold negative attitudes about their conservation (Broch-Due 2000; Neumann 1992; Robbins *et al.* 2009).

The study drew on insights from political ecology to investigate the link between attitudes towards elephants and the political ecological histories of protected areas. I compared the attitudes of two communities that live near protected areas having different histories of establishment and management regimes. Local perceptions of elephants around Mt. Kasigau were more positive than those around CHNP. Respondent accounts indicated that in villages where tangible social and economic benefits have been realized, people tended to have more positive attitudes towards wildlife than where such benefits were minimal or absent. This was evident regardless of the magnitude of crop damage or real threats to human life. In addition, local communities in Tsavo are embracing the "neoliberal ideal" that they need to benefit individually from natural resources in order to improve their livelihoods. Similar patterns have been noted in other studies where people living around protected areas are discontented that the many costs they incur from wildlife damage are not matched by benefits accrued from wildlife tourism and other sources (Emerton 2001; Igoe 2006; Kidegesho *et al.* 2007; Lepp and Holland 2006). Our findings also support research that has positively correlated positive attitudes towards wildlife with conservation benefits (Gadd 2005; Gillingham and Lee 1999). However, monetary incentives might not be appropriate in certain contexts. Based on his research in West Africa, Oates has given a powerful argument against the economic valuation of wildlife as a basis for conservation (Oates 1999). He has argued that the transformation of conservation to an economic activity is one of the reasons why conservation projects fail in West Africa. Other studies have lamented the neo-liberalization of the elephant and the new forms of elephant commodification like tourism, because they reinforce the unequal sharing of costs and benefits of elephant conservation (Moore 2009).

As fears about the extinction of elephants in Africa increase, strategies to protect them and their habitats have become more militaristic (Duffy 2014; Lunstrum 2014). This has not escaped the attentions of researchers; Brockington has sarcastically written that coercion has become a long term conservation strategy in Africa (Brockington 2004). Local narratives in CHNP and Mt. Kasigau shows that the relationship between protected area managers and local communities influence local attitudes. Where the relationship is marked with conflict, as reported in some villages around CHNP, attitudes towards elephants were found to be very negative. Around Mt. Kasigau, local people described their relationship with KFS and KWS officials as cordial and this enhanced cooperation in efforts to protect the forest and deal with crop raiding. Other studies have also found out that regular contact between conservation authorities and local people improves attitudes towards wildlife (Holmes 2003; Hulme 1997; Thirgood *et al.* 2005).

The process of establishing protected areas and the magnitude of population displacement are important in shaping how people view protected areas and protected area resources. Robbins *et al.* have argued that when protected areas are established in conditions of conflict and forced relocations, these conflicts are more likely to persist even after people are resettled (Robbins *et al.* 2009). As the CHNP case shows, the resettlement exercise was handled inefficiently and this allowed influential individuals to take land that was set aside for evictees, leaving squatters on the CHNP boundaries. Human rights abuse and



violence against residents of CHNP during the time of relocation have partly engendered mistrust and resentment towards conservation of elephants. This finding concurs with other studies that have pointed out the direct impacts of displacement on livelihoods and the risk of impoverishment of displaced people (Brechlin *et al.* 2003; McElwee 2006).

Although African government efforts to regulating people and nature (Foucault 1977; Foucault *et al.* 1991) through protected areas have succeeded to a large extent, local people continue to assert their rights to livelihood resources in protected area landscapes. Despite KWS efforts to keep people away from CHNP, the level of illegal utilization of forest resources is higher than in Kasigau forest. Around Mt. Kasigau, where no forced relocations occurred, the majority of local people have decided to stay away from the protected forest voluntarily.

## 5. Conclusion and implications

By conducting in-depth interviews, this study gave local people around CHNP and Mt. Kasigau an opportunity to share their knowledge about elephants. I found that around Mt. Kasigau, residents are more tolerant of elephants compared to CHNP. Although residents in villages around Mt. Kasigau experience similar levels of crop damage, they had more positive attitudes towards elephant conservation. The establishment of Mt. Kasigau forest was done with the support of local people. The Kasigau Taita also own Kasigau Ranch, and its pasture reduces pressure on Kasigau forest or Tsavo West National Park. Initiatives such as REDD + and resultant community projects around Mt. Kasigau have promoted positive attitudes towards wildlife. The events surrounding the establishment of CHNP including displacement of people and the emergence of squatters have contributed to negative perception of elephants and wildlife in general. A number of local residents believe that the park was established to protect elephants, and the need to illegally extract resources from CHNP has led to constant conflicts. Elephants also pose a significant threat to local livelihoods when they damage crops and other facilities such as water pipes, leading to less tolerance towards them. Fortunately, an elephant-proof electric fence along the eastern border of CHNP is under construction. This will significantly reduce crop damage.

By analyzing local views towards elephants in the two study sites, this article has demonstrated that local perceptions about elephants among communities living around protected areas are politicized. They are embedded in issues of rights to livelihoods, and the power dynamics of access to and control over land and resources. The history of protected area establishment and the actions state conservation agencies and conservation NGOs, shape local perspectives about elephants. The study also revealed that local places are being impacted by democratization and liberalization, and local communities have started to demand that they should share the economic benefits that elephants bring.

In order to secure the future for elephants, there is need for efforts to improve local attitudes towards them. Interviews suggested that improving the distribution of costs and benefits of conservation will increase tolerance. Local support for electric fences that keep elephants away from farms was high in the two study sites, despite its effect on access. The majority of respondents favored the involvement of local communities during the implementation of fencing projects. Streamlining the compensation process for crop damage, death or injury by elephants will also improve attitudes. Solutions are required for over-reporting of crop losses, and a lack of compensation funds to meet genuine claims.

This article provides local insights into wider debates and concerns about human-elephant conflict and the conservation of elephants. It also challenges dominant accounts that portray the African elephant as a gentle, "apolitical" and charismatic species that is threatened by local people. Current attitudes towards elephants in the study areas are largely a function of historical and social processes. While elephants are certainly iconic species in Africa, they elicit negative emotions among small scale farmers due to their crop raiding behavior. As the human population in Africa is still increasing, the future of the African elephant is uncertain. The actions of people who live with elephants in Africa's rural landscapes are critical to their future survival. I argue that the political ecology of elephant conservation efforts around CHNP and Kasigau should be framed at a more local level and should take into consideration the livelihood concerns of local residents.

## References

- Adams, W.M. and J. Hutton. 2007. [People, parks and poverty: political ecology and biodiversity conservation](#). *Conservation and Society* 5(2): 147-183.
- Anderson, D. and R. Grove. 1987. The Scramble for Eden: past, present and future in African conservation. In Anderson, D and R. Grove (eds.). *Conservation in Africa: people, policies and practice*. Cambridge: Cambridge University Press. Pp. 1-13.
- Brechin, S.R., P.R. Wilhusen, C.L. Fortwangler and P.C. West. 2003. *Contested nature: Promoting international biodiversity with social justice in the twenty first century*. New York: State University of New York Press.
- Blaikie, P.M. 1985. *The political economy of soil erosion in developing countries*. New York: Longman.
- Broch-Due. 2000. Producing nature and poverty in Africa: an introduction. In V. Broch-Due and R. Schroeder (eds.). [Producing nature and poverty in Africa](#). Stockholm: Nordiska Afrikainstitutet. Pp. 9-52.
- Brockington, D. 2002. *Fortress conservation: the preservation of the Mkomazi Game Reserve, Tanzania*. Oxford: James Currey.
- Brockington, D. 2004. [Community conservation, inequality and injustice: Myths of power in protected area management](#). *Conservation and Society* 2: 411-432.
- Carruthers, J. 1995. *The Kruger National Park: a social and political history*. Pietermaritzburg: University of Natal Press.
- Chapman, L.J., C.A. Chapman and R.W. Wrangham. 1992. Balanites wilsoniana: elephant dependent dispersal? *Journal of Tropical Ecology* 8(3): 275-283.
- Chomba, S., J. Kariuki., J. Friis Lund and F. Sinclair. 2015. Roots of inequity: How implementation of REDD+ reinforces past injustices. *Land Use Policy* 50: 202-213.
- Corbera, E. and H. Schroeder. 2011. Governing and implementing REDD +. *Environmental Science and Policy* 14(2): 89-99.
- De Boer, W.F. and D.S. Baquete. 1998. Natural resource use, crop damage and attitudes of rural people in the vicinity of the Maputo Elephant Reserve, Mozambique. *Environmental Conservation* 25(3) 208-218. [Researchgate](#)
- Duffy, R. 2014. Waging a war to save biodiversity: the rise of militarized conservation. *International Affairs* 90: (4): 819-834. [Draft](#)
- Emerton, L. 2001. The nature of benefits and the benefits of nature: why wildlife conservation has not economically benefited communities in Africa. In D. Hulme and M. Murphree (eds.) *African wildlife and livelihoods: the promise and performance of community conservation* London: James Currey. Pp. 208-226.
- Foucault, M. 1977. *Discipline and punish: the birth of the prison*. New York: Vintage.
- Foucault, M., G. Burchell and P. Miller. 1999. *The Foucault effect: studies in governmentality*. Chicago: University of Chicago Press.
- Gadd, M.E. 2005. [Conservation outside parks: attitudes of local people in Laikipia, Kenya](#). *Environmental Conservation* 32(1): 50-63.
- Gathungu, W.K. 2015. *Human-wildlife conflicts: implications on wildlife conservation and management at Chyulu Hills National Park and its surroundings, Kenya*. Masters thesis. Eldoret, Kenya: University of Eldoret.
- Gillingham, S. and P.C. Lee. 1999. The impact of wildlife related benefits on the conservation attitudes of local people around the Selous Game Reserve, Tanzania. *Environmental Conservation* 26(3): 218-228.
- Githiru, M. 2015. Correcting inequality: how the implementation of the Kasigau Corridor REDD+ project in fact redresses past injustices-response to Chomba et.al. *Land Use Policy* 57: 619-624.
- Gupta, A.C. 2013. [Elephants, safety nets and agrarian culture: understanding human-wildlife conflict and rural livelihoods around Chobe National Park, Botswana](#). *Journal of Political Ecology* 20: 238-254.
- Hetfield, J. 2006. *The Maasai of East Africa*. New York: Rosen Publishing Group.
- Hoare, R.E. and J.T. Du Toit. 1999. Coexistence between people and elephants in African savannahs. *Conservation Biology* 13(3): 633-639.

- Holmes, C.M. 2003. [The influence of protected area outreach on conservation attitudes and resource use patterns. a case study from Western Tanzania.](#) *Oryx* 37(3): 305-315.
- Hulme, D. 1997. [Community conservation in practice: a case study of Lake Mburo National Park, Uganda.](#) IDPM *Community Conservation in Africa Working Papers* No. 3. Manchester: IDPM, University of Manchester.
- Igoe, J. 2006. [Measuring the costs and benefits of conservation to local communities.](#) *Journal of Ecological Anthropology* 10: 72-77.
- Infield, M. and A. Namara. 2001. [Community attitudes and behavior towards conservation: an assessment of a community programme around Lake Mburo National Park, Uganda.](#) *Oryx* 35 (1): 48-60.
- Ite, U.E. 1996. Community perceptions of the Cross River Park, Nigeria. *Environmental Conservation* 23(4): 351: 357.
- Kagwa, S.K. 2011. *Spatial distribution of human-elephant conflict and characterization of crop-raiding elephants in Kasigau region, Kenya.* Masters thesis. Bowling Green, KY: West Kentucky University.
- Kalibo, H.W. and K.E. Medley. 2007. Participatory resource mapping for adaptive collaborative management at Mt. Kasigau. *Landscape and Urban Planning* 82(3):145-158. [Academia](#)
- Kamau, P.N. and K.E. Medley. 2014. Anthropogenic fires, and local livelihoods at Chyulu Hills, Kenya. *Landscape and Urban Planning* 124: 76-84. [Academia](#)
- Kangwana, K. 1996. *Studying elephants.* Nairobi, Kenya: African Wildlife Foundation.
- Kasiki, S.M. 1998. *Human-elephant conflict in areas adjacent to Tsavo National Parks, Kenya.* PhD dissertation. Canterbury: University of Kent.
- KCRP (Kasigau Corridor REDD Project). 2011. *The Kasigau Corridor Project phase II the community ranches.* Project design document version 9 April 27<sup>th</sup> 2011.
- Kenya Wildlife Service (KWS). 2008. *Tsavo conservation Area: Management plan 2008-2018.*
- Kenya Wildlife Service (KWS). *Annual Report 2013.* KWS. Nairobi, Kenya
- Kenya Wildlife Service (KWS). *Annual Report 2014.* KWS. Nairobi, Kenya.
- Kerley, G.I. and M. Landman. 2006. The impacts of elephants on biodiversity in the Eastern Cape Subtropical thickets. *South African Journal of Science* 102: 395- 402. [Researchgate](#)
- Kideghesho, J.R., E. Roskaf and B.P. Kaltborn. 2007. Factors influencing conservation attitudes of local people in western Serengeti. *Biodiversity Conservation* 16(7): 2213-2230.
- Kioko, J., J. Kiringe and P. Omondi. 2006. [Human-elephant conflict outlook in the Tsavo-Amboseli ecosystem, Kenya.](#) *Pachyderm* 41: 53- 60.
- Kuriyan, R. 2002. Linking local perception of elephants and conservation: Samburu pastoralists in Northern Kenya. *Society and Natural Resources* 15: 949-957. [draft](#)
- Leakey, R. and R. Lewin. 1995. *The sixth extinction: patterns of life and the future of humankind.* New York. Doubleday.
- Leakey, R. and V. Morrell. 2001. *Wildlife wars: my fight to save Africa's natural treasures.* London: St. Martin's Press.
- Lee, P.C. and M.D. Graham. 2006. African elephants, *Loxodonta africana* and human elephant interactions: implications for conservation. *International Zoo Yearbook* 40(1): 9-19.
- Lepp, A. and S. Holland 2006. A comparison of attitudes toward state-led conservation and community based conservation in the village of Bigodi, Uganda. *Society and Natural Resources* 19: 609-623. [Researchgate](#)
- Lunstrum, E. 2014. [Green militarization: anti-poaching efforts and the spatial contours of Kruger National Park.](#) *Annals of the Association of American Geographers* 104(4): 815- 832.
- Martin, E. 2002. To trade or not to trade? *Africa Geographic.* October.
- McElwee. P.D. 2006. [Displacement and relocation redux: stories from Southeast Asia.](#) *Conservation and Society* 4: 396-403.
- Moore, L. 2009. The neo-liberal elephant: exploring the impacts of the trade ban in ivory in the commodification and neoliberalisation of elephants. *Geoforum* 42: 51-60.
- Mosse, M.N. 2003. *Resolving resource use conflicts in Chyulu Hills National Park and its environs.* Masters thesis. Nakuru, Kenya: Egerton University.

- Muriuki, G.W., C. Jacobson, C. McAlpine, L.B. Seabrook, B. Price and G. Baxter. 2011. Land cover change under unplanned human settlements. a study of Chyulu Hills squatters, Kenya. *Landscape and Urban Planning* 99(2): 154-165. [Researchgate](#)
- Neumann, R.P. 1998. *Imposing wilderness: struggles over livelihood and nature preservation in Africa*. Los Angeles and California, Berkeley: University of California Press.
- Neumann, R.P. 1992. Political ecology of wildlife conservation in the Mt. Meru area of North East Tanzania. *Land Degradation and Rehabilitation* 3: 99-113. [Researchgate](#)
- Neumann, R.P. 2005. *Making political ecology*. London. Hodder.
- Njogu, J.G. 2004. [Community-based conservation in an entitlement perspective: wildlife and forest biodiversity conservation in Taita, Kenya](#). *African Studies Center Research Report 73/2004*. Leiden: African Studies Center.
- Nyamwamu, R.O. 2016. [Implications of human-wildlife conflict on food security among small holder agro-pastoralists: a case of smallholder maize \(Zea mays\) farmers in Laikipia County, Kenya](#). *World Journal of Agricultural Research* 4(2): 43-48.
- Oates, J.F. 1999. *Myth and reality in the rain forest: how conservation strategies are failing in West Africa*. Berkeley and Los Angeles: University of California Press.
- Omondi, P., E. Bitok, and J. Kagiri. 2004. [Managing human elephant conflicts: The Kenyan experience](#) *Pachyderm* 36: 80-86.
- Paraskevopoulos, S., K.J. Korfiatis and J.D. Pantis. 2003. Social exclusion as constraint for the development of environmentally friendly attitudes. *Society and Natural Resources* 16: 759-774.
- Peluso, N.L. 2003. Coercing conservation: the politics of state resource control. *Global Environmental Change* 3(2): 199-217. [Academia](#)
- Republic of Kenya. 2013. Makueni County Integrated Development Plan, 2013-2017. Nairobi: Government Printers.
- Robbins, P. 2004. *Political ecology: a critical introduction*. Oxford: Blackwell.
- Robbins, P. K. McSweeney, A.K. Changani and J.L. Rice. 2009. Conservation as it is: illicit use in a wildlife reserve in India. *Human Ecology* 37(5): 559-575.
- Schauer, J. 2015. The elephant problem: science, bureaucracy, and Kenya's National Parks, 1955 to 1975. *African Studies Review* 58(1): 177-198.
- Sifuna, N. 2009. Damage caused by wildlife: legal and institutional arrangements. *Environmental Policy and Law* 39 (2):105-127.
- Smith, R.J. and S.M. Kasiki. 2000. [A spatial analysis of human-elephant conflict in the Tsavo ecosystem, Kenya](#). A report to the African elephant specialty group, human-elephant conflict task force. Gland, Switzerland: IUCN.
- Thirgood, S., R. Woodroffe and A. Rabinowitz. 2005. The impact of human-wildlife conflict on human lives and livelihoods. In R. Woodroffe, S. Thirgood, and A. Rabinowitz (eds.) *People and wildlife: conflict or coexistence*. Cambridge: Cambridge University Press. Pp. 13-27.
- Tiffen, M. and M.J. Mortimore. 1992. Environment, population and productivity in Kenya: a case study of Machakos district. *Development Policy Review* 10(4): 359-387.
- West, P. and D. Brockington. 2006. An anthropological perspective on some unexpected consequences of protected areas. *Conservation Biology* 20(3): 609-616. [Academia](#)
- Western, D. and J. Waithaka. 2005. Policies for reducing human-wildlife conflict: A Kenya case study. In R. Woodroffe, S. Thirgood, and A. Rabinowitz (eds.) *People and wildlife: conflict or coexistence*. Cambridge: Cambridge University Press. Pp. 357- 372.
- Waweru, F.K. and W.L. Olelebo. 2013. [Human-wildlife conflicts: The case of livestock grazing inside Tsavo West National Park, Kenya](#). *Research on the Humanities and Social Sciences* 3 (19): 60-67.
- Wittemyer, G., J.M. Northrup, J. Blanc, I.D. Hamilton, P. Omondi, and K. Burnham. 2014. [Illegal killing for ivory drives global decline in African elephants](#). *Proceedings of the National Academy of Sciences of the United States of America* 111(36): 13117-13121.