Investigating the effect of monetary compensation on Human-Elephant Conflict
A qualitative study in Idodi and Pawaga Divisions, Tanzania

Elias Bergman Trygg

Uppsala University
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ABSTRACT

The purpose of this study is to investigate how a compensation scheme affects farmers’ attitudes toward elephants, the Tanzanian government and the concept of conservation. Another purpose is to see what respondents know about the scheme in relation to what is written in the scheme documents. This was done by conducting 20 qualitative interviews with farmers in five different villages in Idodi and Pawaga Divisions, Tanzania. Respondents were divided into two groups: One who had received compensation and one who had not. This aimed to distinguish differences between respondent groups, hence evaluating the efficacy of the compensation scheme and how it affects their attitudes. More interviews were conducted with victims or their relatives who had been attacked by wild animals in order to see what these victims knew of the scheme and how authorities handled attacks.

Results showed small differences between the groups. Both had positive attitudes toward elephants and conservation, contradicting to what is presented in earlier studies. Attitudes toward the government were mainly negative due to suspicions of corruption. There were more positive attitudes toward the government among respondents who had received compensation. Knowledge of the scheme was low compared to what is written in the scheme documents.

Keywords: Human-elephant conflict, compensation scheme, attitudes, farmers, Tanzania

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**Word description and abbreviations**

**Enumerator:** Staff of Wildlife Connection (local NGO) who gather data from elephant crop raiding events.

**HEC:** Human-Elephant Conflict. “Any human-elephant interaction which results in negative effects on human social, economic or cultural life, on elephant conservation or on the environment” (Parker et al., 2007, p. 10).

**HWC:** Human-Wildlife Conflict. A conflict which arises as wildlife negatively affects the wellbeing of humans, or as human activities works harmfully on the survival of wildlife (Madden, 2004, p. 248).

**MBOMIPA: Matumizi Bora ya Malihai Idodi na Pawaga,** “Sustainable Use of Wildlife Resources in Idodi and Pawaga”. An organization under WD, responsible for the management of the WMA in Idodi and Pawaga Divisions.

**MNRT:** Ministry of Natural Resources and Tourism.

**Village meetings:** Meetings held in villages every third month with villagers and local governments to discuss possible up-to-date issues and future priorities affecting the villages and its inhabitants. Information of HEC and the compensation scheme is likely to be communicated to villagers during these meetings.

**WMA:** Wildlife Management Area. Under WD management. A buffer zone surrounding Ruaha National Park, with the purpose of enhancing its protection. The northern boundary of the WMA forms the southern boundary of Ruaha National Park.

**WD:** Wildlife Division. A governmental organ under MNRT “responsible for the management of Game Reserves (GRs), Game Controlled areas (GCAs), and all wildlife outside protected area boundaries and wetlands. The WD also works to facilitate the establishment of Wildlife Management Areas (WMAs), creates awareness and disseminates information about wildlife management to the village communities in their village lands.” (www.mnrt.go.tz/sectors).

**TANAPA:** Tanzania National Parks.
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1. INTRODUCTION

Human-Wildlife Conflicts have existed as long as humans and wildlife have shared habitats. The size of protected areas in the world has doubled since 1990 (UNEP-WCMC, 2012, p. 6), and so has human populations in many development countries. Thus, as human settlements encroach upon wildlife habitat, a competition for natural resources arises and Human-Wildlife Conflict emerges as a threat both to people and wildlife that rely on these resources for their survival. In villages near Ruaha National Park in Iringa District, Tanzania, the conflict between farmers and elephants is substantial. The conflict is likely to be built upon several causes, whereof one may be the growing human population consequently followed by the competition for food and water between humans and elephants. As elephants are important both for the wildlife ecosystem functionality (Hall et al, 2014; WWF, 2014a) and for the tourism incomes of Tanzania (in 2004 tourism stood for 25% of Tanzania’s total export earnings and 16% of GDP – numbers which have risen significantly by now) (Sitts, 2009, p. 4), it is crucial that Human-Elephant Conflicts are mitigated. Except from highlighting the economic importance of elephants, their contribution to Tanzania’s national identity – an identity which is partly built by extraordinary wildlife and nature – is of great importance. The unique wildlife and nature of Tanzania are found today due to conservational practices. If Human-Elephant Conflicts are not dealt with properly, conservation efforts will inevitably suffer, hence leading to long term national economic loss and a national identity leached from what supports it – its wildlife.

One mitigation method is to compensate farmers through monetary payments when elephants bring damage to properties or cause physical damages to humans. This type of mitigation is, however, controversial among conservationists as its implementation often is faced by many challenges. In the quest for finding solutions to the issue of Human-Elephant Conflict, it is nevertheless important to attempt to widen the knowledge of how and when monetary compensation has positive effects, as well as how, when and why it does not work properly. In Tanzania, a governmentally operated monetary compensation scheme was officially introduced in 2011, which aims to console persons who in different ways are affected by dangerous animals, including elephants. This study seeks to investigate the efficacy of this compensation scheme and how it affects attitudes of farmers toward elephants, the Tanzanian government and the concept of conservation. In order to mitigate Human-Elephant Conflicts and facilitate conservation work, it is important that target groups, in this case farmers, are positively minded about conservation and the animals it seeks to protect. It is also important that they do not dislike the organization that manages the compensation system, i.e. that the relation between the target group and the organization is not strained somehow. However, in accordance with the hypothesis of this study, it is possible that respondents will be more positively minded if they can benefit from a functioning compensation system, thus leading to a mitigation of Human-Elephant Conflict.
1.1 Purpose and hypothesis

The purpose of this study is to investigate the efficacy of a governmentally managed monetary compensation scheme in Idodi and Pawaga Divisions, Iringa District, Tanzania. Moreover, it is of importance to see how the concept of being included in (receiving compensation) or excluded (applying for compensation but not receiving money) from this scheme affects farmers’ attitudes toward elephants, the concept of conservation and the Tanzanian government.

Hypothesis: Farmers who are affected by crop raiding elephants are more tolerant toward crop raiding elephants if they benefit from a functioning monetary compensation system. This will make farmers more positively minded about the conservation of elephants, their attitudes toward elephants will be more positive, as well as their attitudes toward the government thus leading to a mitigation of HEC.

1.2 Research questions

1. Does the compensation scheme mitigate the HEC?

2. Are the attitudes of farmers toward elephants, the government and the concept of conservation affected/changed when their crops are damaged by elephants, and they receive compensation? (In what ways are their attitudes affected/changed?)

3. Is there any difference in attitudes between farmers who have received compensation and farmers who have not?

4. What do farmers know about the compensation scheme in comparison to what information is found in the scheme documents?

2. METHOD AND MATERIAL

Data have been collected through interviews with a qualitative approach. It is not uncommon that similar studies are quantitatively directed with large amounts of interviews which enable interviewees to respond within a limited frame of alternative answers. Such a methodological orientation will, however, often not give the researcher the tool to investigate individual respondents’ personal opinions and perspectives, hence such an approach will lose important material which otherwise might gradate, contrast and deepen the knowledge of the studied topic. Trost (2009, p. 14) argues that if one tries to reach understanding in people’s way of reasoning and reacting to a certain matter, or discern varied patterns of behaviors, a qualitative interview is advisable to use.

This is basically what is done in this study; to seek to understand and distinguish individual farmers’ perspectives on how they perceive the efficacy of a monetary compensation scheme, and a qualitative approach is therefore necessary. Moreover, to reach and understand farmers’ individual reasoning and reaction to the studied matter, a narrative presentation of the interviews is a good tool to mediate this.
An interview can have different levels of standardization and structure (Patel et al, 1987, p. 103). Interviews of this study contained questions with a varied degree of standardization, and questions could sometimes be adjusted to the interview situation instead of following a strict order. Some questions opened up for the respondent to express her/himself freely and some had more or less limited alternatives of answers, such as “yes” and “no”, or “I do not know”. Structure of interviews was hence quite low, and these type of so called semi-structured interviews are preferable as they ease the flexibility of the social context in which the conversation takes place between the researcher and the respondent (ibid.). Furthermore, I avoided standardizing interviews because standardization partly assumes that the researcher already knows what answers to expect (Harboe, 2013, p. 36). Although I have a hypothesis to test, it does not mean I know what to expect when I meet the respondents, making the hypothesis quite explorative.

With help from a translator, interview questions and answers were translated from English to Swahili, so that communication was possible between me and the respondents. Interview answers were thoroughly discussed with Mbuta, in particular during quotations, so that no misunderstandings were made during interviews and transcription of the interviews.

2.1 Selection of material

A total of 24 interviews were conducted in 5 different villages. Four villages were located in Idodi Division and one in Pawaga Division. 20 of the interviews were of farmers who were affected by crop raiding elephants. Seven of these were women and the remaining part was men. Although there was an aspiration for interviewing 50% women and men, circumstances in the field obstructed this quest, wherefore it is difficult to measure possible differences in results between the two genders. Eight more people were interviewed, two had been attacked by cape buffalo and lion, and two were relatives to victims of lethal elephant attacks. Attacks by cape buffaloes and lions are known to occur from time to time in the area. These two species are mentioned in the list of dangerous animals in the scheme documents (see p. 15) for which compensation can be paid. In the quest of widening the insight in what victims know of the scheme in relation to what is written in the scheme document, this is hence the reason why these interviews are included. The last four respondents provided information for theoretical purposes and can be found in the theory chapter. It is not appropriate to establish any implications about spatial/geographical varieties of the results of the different villages due to the little number of interviews. Thus a discussion of causes of possible spatial differences in the result is not quite relevant.

Most of the respondents were subsistence farmers, harvesting only to sustain a livelihood. The respondents were divided into two groups: One in which respondents have applied for compensation and received it, and one in which respondents have applied but not received compensation. This will both show if monetary compensation works as a mitigating factor for HEC among respondents, and the difference in attitudes between the two groups. Furthermore, information provided from Enumerators working locally in the villages provided valuable information. An interview of the Director of Wildlife Division in Iringa District, Rachel Nhambu gives the study important information about the scheme itself and the functionality of it. Invaluable information has also been provided through interviews and
conversations with Julius Mbuta, Assistant Director of Wildlife Connection and my translator and coworker during the project (http://thewildlifeconnection.org/about-us-2/), who has been living in Idodi division since early childhood. He possesses information both from working through the organization inside the national park and in villages with community development projects and Human-Elephant Conflict deterrent methods. Equally important, Mbuta has observed the development of HEC and government actions in the issue as a villager, giving the study some inside perspectives. He also worked for the Wildlife Conservation Society as a research assistant 2006-2008, and for Carnivore Project, both inside and outside the national park. Hence, Mbuta holds important material and has contacts both in villages and governmental organs which has helped the study to a level which would not have been possible otherwise.

Regarding the amount of interviews in this study, 24 are not sufficient enough to make generalizations, but the aim of this study is not to achieve this. It is rather to mediate the respondents’ experiences and extend today’s knowledge of what drive and mitigate HEC.

It is important to stress that the reliability of respondents’ answers can be questioned. It is not remarkable to believe that by complaining and exaggerating stories, an economically vulnerable farmer may hope that there is a greater chance for her/him to get some form of help. Before every interview, we explained the purpose of the study and emphasized that we only wanted to listen to what they had to say and that we were unsure if we could affect how the government helps the farmers in the issue of HEC, but that we could publish the study and hope that people would read it. By doing this the probability of a respondent to exaggerate answers in a hope to profit from the interview, would decline. Since some of the respondents’ individual opinions and experiences are mediated, possible factual information (for instance what a respondent knows about the penalty for killing an elephant) can not be trusted.

2.2 The importance of focusing on respondents’ experiences when defining a functioning compensation scheme

In order to evaluate the efficacy of a compensation scheme, I argue that it is crucial to hear how the compensation target group experiences it. This is important since the effect a scheme/system on HWC is dependent on how the target groups perceives it: If they believe it is beneficial it is likely to have a positive effect on the conflict, while if it is perceived as disfavouring, it is likely to imply damaging effect on the conflict or not affect it at all. This is exemplified through studies of schemes which are unusually functioning (Ogra et al, 2008, p. 718; Naughton-Treves et al, 2003).

Speaking in terms of assets and access, Bebbington (1999, p. 2022) argues that even though it may seem like people are surrounded by available and valuable assets, these are useless if the people are not enabled to access them, and turn them into capabilities. Furthermore, Bebbington explains that access to assets not only improves livelihoods, alleviate poverty, allow survival and adaptation, but also serve as a fundamental for the agent’s power to act and reproduce, challenge or change the rules that govern the control, use and transformation of resources (Bebbington, 1999, p. 2022). Put in the context of this study, two possible assets are compensation and food (in the form of crops). If and how farmers can access crops/food is first handedly determined by the level of elephant crop raids
damaging the crops. If the asset of compensation is accessed by the agent (i.e. if compensation is paid), the access to food is facilitated since the agent can afford more food. When the agent is enabled to benefit from these assets she can transform them into capabilities, for instance, in the form of power to affect the rules (or in this case – the government) that control, use and transform the assets. Likewise, if the agent can not access the crop or the money (or more importantly - if she experiences that they are not accessible) she is not as likely to be able to improve the abovementioned circumstances which affect her life. This sense of exclusion may come to exacerbate HEC as the relation between the agent and the government is worsened and the conflict with elephants increases. From this perspective, this study investigates the accessibility of assets and capabilities related to HEC, by concentrating on respondents’ narratives of their experiences of a monetary compensation system.

2.3 Study area

The study took place outside the southeast border of Ruaha National Park, the biggest national park in Tanzania covering an area of 20.226 km² (see figure 1). It is part of the Rungwa – Kizigo – Muhezi ecosystem, a contiguous protected area which covers a range of more than 45,000 km² (tanzaniaparks.com), approximately 800 times larger than the island of Manhattan or somewhat larger than the size of Denmark. The national park and the ecosystem is located in the area where the southern African and eastern African flora and fauna overlap, creating an unusually diverse ecosystem in comparison to other protected areas in Tanzania (Appendix 3).

Figure 1. Map showing the location of Tanzania, the Ruaha National Park, the Runqwa-Kizigo-Muhezi ecosystem (as well as the Usango Game Reserve, and the Lunda-Mkwamhi Game Controlled Area). The different colors symbolize different protection status levels. Source: www.thewildlifeconnection.org

Idodi and Pawaga Divisions are located in Iringa Region, Iringa District, and consist of 21 villages in total. The five villages treated in this study (see Figure 2) are located five or more kilometers from the WMA, near the southern border of Ruaha National Park. Selection of these villages was based upon their more or less equal closeness to the national park border and their vulnerability to HEC events. HEC events had been documented by Wildlife Connection through enumerators who gather data on elephant crop raids in Idodi and Pawaga
Divisions, data which inter alia is given to WD for the scheme (Mbuta, 2014). Based on the 2002 population census projections, there were 1,679,828 people in 2008 in Iringa Region, 4.3 % of the total number of people on the mainland of Tanzania (NBS, 2012, p. 1). 88 % of the households in the region work with crop farming as the main livelihood activity, and maize as the superiorly most grown crop. The average used land area of the region is 2.5 acres\(^1\) per household.

![Figure 2. Map over villages in Idodi and Pawaga Divisions, with the five interview sites marked in red. Source: Original map provided by Sarah Day Maisonneuve (http://thewildlifeconnection.org), but processed in GIS.](image)

### 2.4 The history of political ecology and conservation

Conservation is a word which may have different meanings depending on who perceives it. Ordinary westerners may firstly associate it with the protection of wilderness for righteous and good causes, while a subsistence farmer on the border of a protected area may think more negatively about it. Possible explanations for why the subsistence farmer can think this way about conservation are many, and I will mention a few in this chapter.

During the 80s and 90s a lively debate developed about the linkage between conservation and poverty. The World Conservation Strategy (WCS) (IUCN, 1980) was an important early document in the highlighting of the importance of local development (especially rural development) in connection with conservation. A distinct message was addressed, that sustainable development and conservation were closely dependent of each other and that these

\(^1\) 2.5 acres is approximately equivalent to 1 hectare.
could be reached together globally, regionally and locally. Particularly, it was emphasized that the achievement of these could help the true needs and interests of rural, poor people (Adams, 2009, p. 275). During this period of time, and up to this day, broad arguments have been formed which state that sustainable development and conservation of biodiversity should be constructed so that local people will not be prevented from developing economically and socially, but instead work as a driver of community development and alleviators of poverty (ibid., p.277). But upon what causes might these arguments have been built?

**Much of the history of conservation in the Third World is not one of happily shared interests between rural people and state conservation bodies, but one of exclusion and latent or actual conflict** (Adams, 2009, p. 277). In the late 19th century, a conservation model was constructed in USA during the founding of Yellowstone and Yosemite National Parks. This idea denoted that nature was a conception of primeness and something separated from the human transformation of lands, a wilderness in which its indigenous peoples did not belong. Hence, Indian tribes were displaced from areas which were planned to be protected. Soon, this idea spread to European colonies in Africa, but the meaning of conservation during this time period was somewhat different compared to today. Much of the conservation in the beginning and first half of the 20th century entailed extensive big game hunting carried out mainly by European colonialists. Richard Hingston, an English Major and explorer, was sent to East Africa by the Society for the Preservation of the Fauna of the Empire in the 1930s to investigate areas for future potential national parks. In his report from this trip, he emphasizes some of the true implications of wildlife conservation in the beginning of the 20th century:

It is commonly thought that the visiting sportsman is responsible for the decline of the African fauna. That is not so. The sportsman does not obliterate wild life. True, he kills. But seldom is the killing wholesale or indiscriminate. What the sportsman wants is a good trophy, almost invariably a male trophy, and the getting of that usually satisfies him… The position is not the same with the native hunter. He cares nothing about the species or trophies or sex, nor does he hunt for the fun of the thing. What the native wants is as many an animals as possible for the purpose either of meat or barter. (Hingston, 1931, p. 404)

Hingston’s thoughts indicate some of that times’ intention of nature preservation, that is, to open up protected areas for the enjoyment of western hunters. Hingston also rejects the natives and their ways of hunting since the purpose of hunting for them is not for “the fun of the thing”, but for meat and barter. To found the protected areas which Hingston advised in his report, he emphasized that in order to establish them the natives had to be separated from nature. Along with the European conservation ideas, a number of exclusive royal and aristocratic hunting reserves were founded, in which rural hunters living of the land were stigmatized as “poachers” (Adams, 2009, p. 279). These peoples were only allowed to hunt animals which the Europeans considered as pests (such as bush pigs, warthogs and monkeys) (Kidegesho, 2008, p. 3). The separation of man and nature can be exemplified through the Game Protection Ordinance, a comprehensive legislation established by the British Administration in 1921. In this legislation, natives in protected areas lost access to natural resources such as firewood, medicinal plants, wild fruits and land for cultivation and grazing. As all the wildlife and land in Tanzania at this time was said to be the property of the Queen
of England, natives called these protected areas “Shamba la Bibi” (“Queen’s farm”) (ibid., p. 3) and had to ask for her permission if they wanted to stay in these areas (Mbuta, 2014). In Ruaha National Park, many people stayed during the British colonization, and had to move out first after Tanzania gain Independence in 1961. Thus the nature was not for the people who had lived in it and utilized its resources long before westerners arrived.

The American conservation model that was applied in Yellowstone and Yosemite also came into practice in Africa. For instance, 40,000 people were relocated from their homes in what would come to be the Selous game reserve in Tanzania. Early colonial administrators in Kenya and Tanzania formed an idea that Maasai were “predators terrorizing neighbouring groups” (Collett, 1987, p. 144). It was believed that the Maasai people had no place in nature and the eviction of them was hence a natural part of conservation. Similar cases can be found in a number of protected areas both in East Africa and in developing countries across the world (darwininitiative.org.uk, 2007). The exclusion of local people from protected areas is named by Robbins (2007, p. 705-706) and Igoe (2002, p. 594) as “fortress conservation”, which basically is a conservation approach that tries to preserve nature through the forcible exclusion of the people who live there and who are dependent on its resources for their livelihoods. The concept often starts with a presumption that the local people of an area have damaged the environment, and that western science possesses the tools to reestablish it to the pristine Eden it was before local people degraded it. This approach was dominant until the middle of the 80s, when the community based approach and sustainable development grew strong to become the main ingredients in the concept of conservation, at least in theory.

Although the most severe impacts of PAs are related to loss of residency and use of natural resources due to eviction from an area, there are many other costs of conservation that rural poor people have to pay; one major problem is the conflict between farmers and crop raiding elephants, which will be illuminated through much of this study.

From the history of conservation it is not remarkable to believe that rural poor people might experience a type of powerlessness and frustration in the context of how conservation has been designed by westerners, extensively to the advantage of westerners. In the minds of rural people, conservation may hence be equivalent to the separation of themselves from nature and from the decision making of it.

2.5 The hypothetico-deductive method

The hypothetico-deductive method is an approach derived from Poppers critical rationalist theory of falsification (Pidwirny, 2006). It is a way of postulating a falsifiable hypothesis and making it subject to the severest critical testing to see if they are strengthened or falsified (Haines-Young et al, 1986, p. 42-43). The method initially involves the construction of one or several hypothesis/hypotheses, followed by choice of method of testing the hypothesis, implementing the method, and analyzing the results in terms of how the hypothesis was strengthened or falsified. However, the result is never set in stone and the outcome may differ from time to time, preventing a hypothesis from being entirely true and universal (Haines-

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2 Between 1964-1974 people were translocated from Ruaha National Park to outside its borders. This translocation formed many of what today is the villages in Idodi and Pawaga Divisions, where this study took place (Mbuta, 2014-10-19).
Young et al., 2006, p. 65). Furthermore, according to Popper, the aim of science is not to create some absolute truth, but to produce theories of greater verisimilitude – higher truth content.

This study is essentially following this methodological structure, although it may not be performed in a strictly Popperian manner; I have constructed a falsifiable hypothesis which I will test through semi-structured interviews and analyze the result in relation to how it corresponds with the hypothesis. Analysis of the result will also be connected to the theoretical framework, and in particular to previous research on the subject of monetary compensation in HWC. Although I would not place myself in a specific branch in the theory of science, such as the critical rationalism, I will not seek to find some absolute truth, and I therefore support Popper’s idea of enhancing the truth content in theories. Even though this study is not extensive, I hope to contribute to the constantly accumulating science of greater verisimilitude which can be considered as the driver of scientific progress.

3. THEORETICAL BASIS
3.1 The African savanna elephant

There are at least two subspecies of African elephants: the savanna elephant (*Loxodonta Africana*), the forest elephant (*Loxodonta cyclotis*), and recent research has also pointed out a third subspecies – the West African elephant (however, more research is needed to affirm this) (Blanc, 2008). The savanna elephant is the biggest of these. Adult bull elephants might reach weights up to approximately 6 tonnes, measuring up to 7 meters in length and 3.5 m in height, while females are smaller and can weigh circa 4 tonnes.

Elephants are social, gregarious animals living in groups of usually 10, but up to 100 or more individuals (if groups are joined together) (WWF, 2014b), mainly consisting of an old matriarch leader, other preparturient females (individuals who have mated and given birth to an offspring) and nulliparous females (who often are pre-fertile and not given birth to a live offspring), and young bulls (Blanc, 2008). Younger bulls leave the group when they become sexually mature at an age of 12-15 years, and join other males in groups of a few to approximately 40 individuals. After every rainy season male elephants enter a state of heat called *musth*, which normally occurs at an age of 25-30 years. This state implies a dramatically elevated production of testosterone, swollen and secreting temporal glands, heightened sexual instincts, dripping of urine, and an aggressive behavior (Slotow et al., 2000, p. 425). The period of musth usually lasts longer as the male gets older (it may last up to 4 months when a bull is over 40 years old). However, studies have shown that when populations lack old male individuals, younger males might enter musth at an age of circa 18 years which can last more than 4 months (as long as bulls who are more than twice as old). Such a development within a population may be devastating, which was exemplified in Pilanesberg, South Africa, where the introduction of orphaned young males in a reserve led to the death of 40 white rhinoceroses, as a result of the lack of old males controlling the musth of the younger males (ibid.). The killing surceased when older males were introduced.

African elephants can be found in 37 countries in sub-saharan Africa (Blanc, 2008). Although both the Savanna elephant and the Forest elephant both are considered endangered and threatened in parts of their range distribution (Western and Central Africa), the
populations in Eastern and Southern Africa are on the rise and outweighing the declining trend in the other two regions with an annual increase of 4%. Tanzania is the country with the outmost largest elephant population, numbering 90,351 compared to Kenya which hosts the second largest East African population containing of 26,365 individuals in the 2012 census (Elephant Database, 2013). The population in Southern Africa numbers 267,966 with local and regionally dense populations especially in Botswana, Zimbabwe, Mozambique, Namibia and South Africa (ibid.). In the Rungwa-Ruaha ecosystem, which hosts the largest population in Tanzania, last years’ aerial censuses have shown a decrease from 35,461 (+/-3,653) in 2006 (census covered an area of 43,601 km2) to 20,090 (+/-3,282) in 2013 (census covered an area of 50,976 km2). The area shows an unnaturally high death rate, and the carcass ratio (calculated from 1,247 counted live elephants and 214 carcasses) is 14.6%. A carcass ratio representative for a population which suffers natural mortality is 7-8% (TAWIRI.a, 2013, p. 7-8). In the Selous-Mikumi ecosystem, the largest protected area in Tanzania, aerial censuses in 2006 (covering an area of 80,883 km2) estimated a population of approximately 70,406 elephants while in the 2013 census 13,084 individuals was counted on an area of 87,421 km2, the lowest ever recorded number (TAWIRI.b, 2013, p.8). The decline of the elephant population in Tanzania is the result of extensive poaching which, according to recent reports, is born out of widespread corruption from park ranger level to high political level. This, in combination with poverty and an unregulated illegal ivory market, are the major drivers of this alarming development. During the ongoing regime, under president Kikwete, the elephant population has declined from approximately 142,000 elephants since Kikwete was elected in 2005, to a predicted number of 55,000 in 2015 when the next presidential election takes place (EIA, 2014, p. 9).

3.2 Zoogeomorphology and elephants as ecosystem engineers

Geomorphology is the science of landforms, and in particular their origin, evolution and the processes which configure them (geography.about.com). Zoogeomorphology is hence the science of animals’ geomorphic impact on the alteration of landscapes (Butler et al, 2012, p. 1). The discipline of zoogeomorphology is closely related to the phenomenon of ecosystem engineers, as described by Jones et al. (1994, p. 374): Ecosystem engineers are organisms that directly or indirectly modulate the availability of resources (other than themselves) to other species, by causing physical state changes in biotic or abiotic3 materials. In so doing they modify, maintain and/or create habitats. The changes they cause in the landscapes by moving through it may be beneficial or unfavorable for other species. This study essentially emphasizes how elephants as ecosystem engineers create unfavorable conditions for Human beings as elephants modify the landscape and directly modulate the availability of natural resources in the form of crops. However, elephants’ roles in changing the habitat is important for the survival of other species; for instance, studies have shown that by opening up the terrain in densely vegetated areas, elephants enhance Black rhinoceros foraging opportunities (Landman, in prep.) and creating favorable habitats for tortoises (Grant et al, p. 178). Other

3 Abiotic material is non-living physical and chemical components of the environment which affect living organisms and the structure of ecosystems, such as water, soil, temperature and light (http://www.thefreedictionary.com/abiotic).
hypotheses have been postulated on how elephants improve the lives of other species, but according to Grant et al. (ibid., p. 179) many have not been completely affirmed. In areas which are overpopulated by elephants, consequences may be severe for other species and ecosystems may suffer significant biodiversity loss, while in other areas elephants enhance biodiversity through moderate natural disturbance of vegetation and soil and the spread of seedlings through feces (Campos-Arceiz et al, 2011, p. 542).

Elephants’ zoogeomorphic impact on landscapes can be extensive, and they can alter the landscapes in many different ways making them true landscape engineers. I intend not to mention more than a few of these alterations since a deepened zoogeomorphic knowledge is not needed to understand the issue of Human-elephant conflict.

Uprooting and vegetation displacement by elephants constitute significant alterations on the landscape. Elephants remove large quantities of vegetation when they are grazing, and due to their size they may turnover trees in their search for food, disturbing the soil and making it vulnerable to weathering and erosion by wind and water (Guldemound et al, 2007, p. 330). Elephants are mixed bulk grazers and eat grass, fruits, trees, shrubs and are not very selective in what they feed (Bigwood, 2011, p. 15). An adult individual can eat well over 150 kg during 24 hours (Estes, 1999, p. 224), a fact which further emphasizes their potential impact on landscapes and in particular cultivated areas.

Photo 1. Throughout the years, elephants have stripped the moist bark and wood out of this baobab tree – an illustrative example of elephants’ capacities as landscape engineers. The
3.3 Causes of HWC
A number of different factors and sets of global trends have led to increased Human-Wildlife Conflict worldwide. These are mainly connected to anthropological circumstances, whereof some are summarized by FAO (2009, p. 14-25). The main cause of HWC in Africa is:

- The competition of habitat between humans and wildlife due to an expanding human population, followed by the increased need for new settlements and natural resources. Expansion of agricultural activities in rural areas is one of the most serious and common causes of HWC (ibid., p. 14). The population in Tanzania, as in many other African countries, has tripled since the 1960s (see Figure 3), a development which has occurred more or less parallel to the development of an increased conflict with wildlife during the last decades. However, HWC does not have to be the result of a growing human population. In Sweden, the rapidly growing wild boar population has led to the intermittently intense conflict with farmers (Bergman Trygg, 2014).

- Migration in the search for food security and personal safety are important factors leading to HWC. The former is connected to the growing human population and the consequent need for enhanced food security. The latter can be due to war and political instability which forces people to move into wildlife habitat, hence resulting in HWC.

- FAO (2009, p. 16) also mention that rural Africans has little sympathy for wildlife, a factor contributing to conflict. I do not put any evaluation in whether or not this is true, but as I called attention to in chapter 2.2, the history of conservation in Africa has not occurred to the benefit of its people but much to the benefit of westerners. This history may have left some of the attitudes described by FAO imprinted in the roots of African societies. Furthermore, as this and many other similar studies show, rural people who live near protected areas need to pay a great deal to the conservation of wildlife in terms of being afflicted by everyday conflict with animals. This can also be

![Figure 3. Population trend of Tanzania 1967-2012. Source: NBS, 2013, p. 27](image-url)

tree is 4-5 meters in diameter (Ruaha National Park, 2014-11-02). Photographer: Elias Bergman Trygg
seen as an explanation of FAO’s postulation (if it is true), although it is difficult to affirm it.

- HWC does not necessarily have to be directly between humans and wildlife, but also between humans about wildlife (Madden, 2004, p. 249). This is exemplified by a case study of Bergman Trygg (2014, p. 18) which shows a conflict of interest between farmers about wild boars.

FAO (2009, p. 21-23) also mention naturally orientated causes of HWC:

- In some places, draught has shown to be a contributing driver of HWC, making wildlife enter human settlements in the search for water. The decrease of natural prey due to long lasting draughts can make predators, especially lions, to prey on livestock (ibid., p. 22).

Even though the above mentioned causes are directed to HWC in general, much of them also work as fundamental drivers for HEC in particular.

### 3.4 Previous research on HWC monetary compensation

Compensating wildlife damage is a controversial concept among conservationists. Most research show that its implementation, and sometimes even effects, has more negative sides than positive. For instance, Naughton-Treves et al. (2003, p. 1509) investigated how a well-implemented compensation system in Wisconsin (USA) affected people’s tolerance toward wolves and their depredation of livestock. Even though people favored monetary compensation as a method for mitigating HWC, tolerance for wolves was not approved even when compensation was paid. The study indicated that attitudes and tolerance toward wildlife may be difficult to affect through economical compensation due to deep-rooted social identity factors formed early in life.

Moreover, Ogra et al. (2008, p. 723-724) conducted a study in Uttarakhand (India) which showed, inter alia, that many people affected by wildlife damage did not apply for monetary compensation since they thought the bureaucracy involved in the application process and the insufficient compensation prevented them to do so. The functionality of the compensation system was low since almost half of applicants did not receive it, which many thought was due to corruption, although this could not be verified.

Hoare (2012, p. 67-68) summarizes further obstacles involved in wildlife compensation systems; compensating victims does not do anything to identify the problem behind HWC, thus the probability of damages to occur is unchanged. It may lower victims’ will to protect their property which will lead to more damages and put economic pressure on the compensation system – Hoare calls this the moral hazard. As Ogra et al. (2008, p. 723-724) indicated, Hoare also mentions the vulnerability of compensation to corruption. Payment only to a few victims might result in anger and enviousness among other applicants and lead to internal social conflicts within and between villages. The problem of inflation may undermine the actual value of the lost property, so that payments become insufficient which leads to resentment among recipients (however, this may not have to do with inflation, but just meager sums). Finally, Hoare (2012, p. 68) claims that compensation schemes almost never keep up
changes within the economy, or changes in legislations and social policies which may create problems with the management of the scheme.

The fact is that the challenges facing compensation systems have convinced the Human-Elephant Conflict Working Group of the IUCN to argue against the use of HWC damage compensation. They regard it as a risk to initiate an implementation of such a system, since if it fails to work properly, it may exacerbate the problem even more (AFESG, 2007).

3.4.1 What defines a functioning compensation scheme?
It is important to define what a functioning compensation system is, or what factors characterize it. In this study it is indeed important to make this clear, since all respondents (regardless if they received payments or not) spoke of it as dysfunctional, as will be presented in the result. Nyhus et al. (2003, p. 40) identifies some important core elements which are crucial for a compensation scheme to be functioning:

- “Quick, accurate verification of damage”: Which takes training/education and the proper tools to measure damages. Some form of apparatus to develop trust among applicants is necessary, so that they know that the application is just and undissembled.
- “Prompt and fair payment”: Referring to compensation which is paid in a timely manner, so that damage victims will not show resentment toward wildlife or authorities responsible for the management of the scheme. The process of application to payment has to be transparent and shielded from abuse, i.e. corruption, and account for events which can not be entirely affirmed (for example if it is difficult to control how many goats have been killed by a hyena). The scheme should also have qualities which acknowledge values of different kinds of livestock and crop.
- “Sufficient and sustainable funds”: Nyhus et al. (2003, p. 40) here stresses that an insufficiently funded scheme may cause more problem than good. It should be constructed and planned to follow eventualities which may affect the economy of the scheme, such as the varying of damage occurrence from year to year. It should be planned for a long-standing sustainability, and/or for a type of exit strategy. Reliable information gathered from field level is necessary to make it possible to plan for future compensations and maybe adapt compensation for different local circumstances, e.g. the differences in damage between different locations.
- “Site specificity”: The need for showing awareness for local conditions regarding site, species, social and cultural specific issues. A feeling of participation among local people and a sense of cooperation between local people and authorities responsible for the scheme is good to avoid a deteriorating relation and conflict between the two parts.
- “Clear rules and guidelines”: If a scheme is to be well implemented and successful, it should be under powerful institutional support and the scheme itself need to have clear rules and guidelines with no ambiguities or obscurities which are difficult to understand. The scheme should be managed through well-established practices, and can not be unplanned or unstructured.
- “Measures of success”: Does the scheme have the right effects? Are there indications that HEC/HWC is mitigated in a way which would not be possible if it would not have
been implemented? – e.g. are people more tolerant toward wildlife or have their attitudes toward authorities responsible for conservation in the area changed to the better?

From how Nyhus et al. (ibid., p. 40) above defines as a functioning scheme, it might cross one’s mind that managing such a system is a difficult task which demands a widely competent organization. With regard to the obstacles facing the functionality of these schemes, it becomes even more evident how challenging a HWC compensation management may be.

3.5 Interpretation of The Wildlife Conservation (Dangerous animals damage consolation) Regulations 2011

The compensation scheme treated in this study - The Wildlife Conservation (Dangerous animals damage consolation) Regulations 2011 (Maige, 2011), is a monetary compensation scheme managed by the MNRT and WD and became officially active 22/4/2011 in Tanzania, after the new Wildlife act was passed in 2009 (Hoare, 2012, p. 69). It offers consolation⁴ in the form of money to persons who “…has suffered damage or destruction of his crops or livestock caused by dangerous animal…shall, upon application and determination be eligible for consolation” (Maige, 2011, p. 98). The scheme is hence not only for damage caused by elephants, but a number of other species including black rhinoceros (Diceros bicornis), spotted hyena (Crocuta crocuta), hippopotamus (Hippopotamus amphibius), nile crocodile (Crocodylus niloticus), buffalo (Syncerus caffer) and lion (Panthera leo). It is not entirely clear what type of damage makes a person eligible to a payment, despite the regulation cited above, since death of human or temporarily/permanent injury is mentioned on page 105, which is not part of the regulation per se. Moreover, in the word definitions described on page 97, the word “livestock” includes cattle, sheep, pigs, goats, mule and donkeys and all other domesticated animals, including their eggs and young. Death of cattle would make a person eligible to a payment of 50,000 tshs⁵ (1 USD=1733 tshs) while death of sheep/pig/mule/donkey/goat is 25,000 tshs and other domesticated animals (including their offsprings) is 10,000 tshs.

If a person who is affected by any of the abovementioned incidents, and has followed this described application procedure, he/she will be eligible to payment. The applicant should:

(a) Report the incident to the nearest Village Executive Officer of the area where the incident occurred within three days; (b) apply to the Director (i.e. the Wildlife District Officer) in a prescribed form set out in the First schedule to these Regulations; (c) at the time application is submitted or at any subsequent time, provide the Director with any information he Director may require in order to determine the applicant’s eligibility for consolation. (3) A person shall not be entitled to consolation, unless he has made an application under these regulations. (4) All applications for consolation under these Regulations shall be made to the Director in the form set

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⁴ Although the scheme is said to offer consolation, in this study I choose to refer to it as the “compensation scheme” or the “scheme”, as this term seems more accurate in relation to the topic.

⁵ According to a Maasai pastoralist (conversation, hrs 09.46-10.00, 2014-11-02) in the village of Tungamalenga, a cow calf sells for approximately 300,000 tshs, and 600,000 tshs (but up to 1 million tshs) for an adult.
out in the First and Second Schedules to these Regulations within seven days and be verified by a Wildlife Officer, Agricultural or livestock Officer or Ward Executive Officer, two independent witnesses within the area and the case of human injury or death, a medical practitioner of a rank of clinical officer and above. (5) The Director shall upon receipt of an application for consolation conduct an inspection. (6) Any person who provides incorrect or false information while processing an application under these Regulations commits an offense[…]shall be liable, upon conviction, to a fine of not less than three hundred thousand shillings but not exceeding five million shillings or imprisonment for a term of not less than six months but not exceeding two years or to both. (Maige, 2011, p. 98-101)

Furthermore, the Director may reverse a decision for consolation made upon (a) re-verification of the damage, or (b) satisfying himself that the initial decision was incorrect. (4) The Director shall complete any revision of a decision within one year (ibid., p. 100).

That and the following regulation make it clear that the Director has all the power to prevent an applicant from receiving a payment: (8) The Director may at any time, upon being satisfied that an applicant is not eligible to consolation or the amount of consolation payment is incorrect, vary or disapprove the amount claimed (ibid., p. 100). If the area of crop damage exceeds five acres, if the damage was stunted or no harvest was expected, no compensation will be paid.

The applicant, on the other hand, is said to have opportunities to disapprove decisions and being heard:

[...] 9. (-1) The Director shall not vary or disapprove claims under these Regulations without having given the applicant an opportunity to be heard […] within thirty days, an applicant shall have the right to make representation or to show cause as to why his claim should not be varied or disapproved. (3) The Director shall within sixty days, upon receipt of the Applicant’s representations […] make a decision on the claim. 10. (-1) Any person who is aggrieved by the decision of the Director may, within thirty days of receipt of the Directors notification, appeal to the minister.(2) The Minister shall within sixty days upon receipt of an appeal from an aggrieved applicant, review and determine on the appeal […] The decision of the Minister shall be binding and conclusive. (Maige, 2011, p. 99-100)

Moreover, the payment rates are as follows:

- Loss of human life: 1.000.000 tshs.
- Permanent disability of human: 500.000 tshs.
- Temporary injury of human: 200.000 tshs.
- Death of cattle: 50.000 tshs.
- Death of sheep/goat/pig/mule/donkey: 25.000 tshs.
- Death of other domesticated animals: 10.000 tshs.

The rates of crop damages are restricted to the distance of the farm to a protected area, i.e. the WMA in this study. The rates are per acre (up to maximum five acres); nothing will be paid if the farm is up to 0.5 km from the WMA, 25.000 tshs will be paid above 0.5 km-1 km from WMA, 50.000 tshs will be paid above 1 km-4 km from WMA, 75.000 tshs will be paid above 4 km-5 km from WMA, and 100.000 tshs will be paid above 5 km from WMA. All villages included in this study are located more than 5 km from the WMA,
hence making applicants eligible for payments of 100,000 tshs per acre. What is not explained in the document is if less than 1 acre is damaged, no payment will be considered. This was assumed through interviews with respondents who had been told this by damage inspectors.

3.6 Interview of WD Director, Rachel Nhambu (17/10-14, hrs 10.00-10.15)
Rachel Nhambu is the Wildlife District Officer of WD (Director), responsible for the management and implementation of the above described compensation scheme, in Iringa District. A short interview with her was conducted in the Wildlife Division District Office in Iringa Town, and a few straight-forward questions were asked regarding the yearly budget for the compensation scheme. No answers were given on how much money is put every year for the scheme, and I was instead directed to MNRT for questions about economy. When questions were asked about information of the compensation scheme which, as far as I knew, became active in 2008/2009, Nhambu replied that there is no compensation scheme but a consolation scheme which became active in 2011⁶. She had not heard of any scheme from 2008/2009 -a peculiar matter since she had been seen on a village meeting in Idodi Division informing villagers about the scheme in 2010, as well as being seen handing over money to applicants in 2010 (see below).

3.7 Interview of villager in Mapogoro (16/10-14, hrs 14.30-14.39)
This villager, a 53 year old farmer (male), provided brief information of one village meeting in Mapogoro, Idodi Division, in March 2010 and one in the summer of 2010 (from which the man had taken notes, showing us). The woman informed us that the Director, Nhambu, had visited the village during the meetings in 2010 to give money to people who had applied for compensation due to crop loss caused by elephants, and informing about the scheme. During the meeting in 2010, Nhambu attended a village meeting wherein she informed villagers that crop damage would be compensated if one acre was damaged. More than one acre would still be equivalent to the compensation for one acre (100,000 tshs), and less than one acre would not be compensated at all. This information is not what is described in the document, and this source indicates that Nhambu managed a compensation system which was active before 2011, a system which she says she does not know about. According to this source, it seems like Nhambu is lying and withholding information for some unknown reason.

3.8 Interview of voluntary worker of MBOMIPA (20/10-14, hrs 09.15-09.30)
This man lived in Idodi village where he made a living as a farmer, but worked voluntarily for the MBOMIPA in Idodi Division with gathering applicant names for the compensation scheme, and giving these to Director Rachel Nhambu. He claimed that he volunteered (worked for free) to help the villagers in the area since the Wildlife Division could not

⁶ If one should trust the information given by Nhambu, one would draw the conclusion that there are/have been two active compensation schemes: One which was active in 2008/2009, as explained by respondents in the result chapter, or the one which Nhambu informed of. Since there is no information to be found about any other scheme except the one found in the Wildlife Conservation Regulations 2011, I choose to believe that this is the scheme which was active from 2008/2009 (although maybe not officially active).
manage the compensation system and help villagers in an efficient way. He started gathering names in 2008, and informed that in 2008-2009, there were 27 applicants whereof seven received compensation in 2010. In 2010-2011 there were 22 applicants and 16 of these received payments in 2011. In 2012-2013, 15 have applied and 11 have been informed that they will receive payments but not received it yet in 2014. From the information this respondent gives, compensation has been paid in Idodi village (capital village in Idodi Division) in 2010, 2011 and 11 have been told to receive only 50,000 in 2014, although this is not verified yet since nothing has been paid so far (the money is usually paid in October). Hence, compensation has not been paid in 2008, 2009, 2012, 2013 (and 2014). However, the compensation scheme this respondent speaks of is not the official consolation scheme which became active in 2011, but the system which the interviewed farmers are familiar with and the one Director Nhambu claims not to know of.

This respondent criticized that when compensation is paid it is very insufficient, and described how much he spent on his agricultural business during one season:

- 30,000 tshs is for renting his corn field during 6 months.
- 50,000 tshs for fertilizing.
- 50,000 tshs for tractor rent.
- 50,000 tshs for weeding.
- 45,000 tshs per month for hiring people to protect crops from wild animals during nights.

One sack of corn (100 kg) is sold for circa 45,000 tshs in 2014 (7 sacks of corn is averagely produced per acre during one year). Expenses connected to rice production is 50,000 tshs for cultivation, 70,000 tshs to mix soil, 60,000 tshs to hire people to help, weeding totally 195,000 tshs. One sack of rice is currently sold for +70,000 tshs (12-16 sacks are produced per acre in Idodi Division). He has complained to Director Nhambu that this is far from enough to compensate crop losses and that living is hard when elephants are destroying crops and no profit can be made through the work. “But nobody listen to what I say”, he claims and says that even though the Director is supposed to come and inspect damages herself, she manages to find people who does this for free – people like him who want to improve the life of the villagers in the area.

### 3.9 Information of a deteriorating wildlife and community management

Information was given by an anonymous source, 45 year old man formerly employed by the WD working as a Village game scout in the WMA in Idodi and Pawaga Divisions. He informed that both villages and wildlife benefitted from the protected area 1996-2006; during this time period every village in Idodi and Pawaga had 10 Village game scouts who were paid mainly to guard the WMA area from poachers. These scouts stayed a few weeks at a time inside the WMA area to prevent poaching activities, and also preventing wildlife from leaving the park and entering the villages. After 2006 however, WD implemented a reform which meant that only two better paid Village game scouts from each village would work, leaving the eight others from every village jobless. The respondent informed that many of these

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7 A village game scout is a person working to prevent poaching in the WMA.
jobless former scouts now are engaged in poaching to make a living. Many people know who engage in poaching in their villages, but nobody dares to reveal them, the man said, and explained that people are afraid of getting into trouble if they name poachers to the authorities. Sometimes the poachers work for big poaching leagues, which often manage to bribe the police and free the poachers from prison: When the poachers then return to the villages, the people who named them might get into trouble.

The respondent also spoke of a Tourist hunting activity in the area, wherein tourists pay large amounts to hunt big game. Much of the hunting in Tanzania is under WD management and responsibility, so part of the income generated from this goes to the WD (see also Baldus, et al, 2004, p.12-15) and to the villages in Idodi and Pawaga Divisions. Before 2011 each village (21) in Idodi and Pawaga Divisions received 2.2 million tshs every year, but after this year the WD decided that this sum would be distributed to other villages in the whole District, leaving every village with only 800,000 tshs per year. The respondent said that this has caused resentment among villagers, since many villages in Iringa District do not have the same problem with wildlife as villages in Idodi and Pawaga. Furthermore, the man claimed that the tourist hunting was more beneficial for the villages before than today, since the hunting guides take bribes from tourists: I heard from one Village game scout that a few weeks ago, a guide accepted a bribe of 700,000 tshs from a tourist hunter to shoot one more lion (Former village game scout, 2014).

3.9.1 Desiccation of the Great Ruaha River
The Great Ruaha River, with a catchment area of 83,970 km2 (Arvidson et al, 2009, p. 23), has its source in the mountains of the Poroto and Kipengere ranges and flows eastward through the Usangu wetland, Ruaha National park and the study area. After passing the Mtera and Kidatu hydro electrical reservoirs, it eventually flows southeastwards and enters the Rufiji River in The Selous Game Reserve (Lankford, 2009, p. 176). The Great Ruaha River is a vital part of the ecosystem where it flows. Humans depend on it for subsistence and industrial cultivation, and the river is a life supporting water source for wildlife during the dry season. However, commercial rice farms supported by irrigation from the river were established in the mid 70s in the Usangu plain (the main catchment area for the river), followed by a large rice farm in the mid 80s. Shortly after the establishment of the second farm, the flow started to decrease and in 1993 the river was dry for the first time ever recorded, during three weeks. Since then the depletion of the river has continued, and in 1999 the river was dry for three months during dry season. This is a situation which has deteriorated during the last 14 years (Friends of Ruaha, 2007). The desiccating of the river may be a fundamental driver of HEC in the study area, although this has not yet been verified.
Photo 2. A group of bull elephants crossing the riverbed of the Great Ruaha River in Ruaha NP in October 2014. The water level was unusually high during the dry-season this year compared to other years (Mbuta, 2014).

(Ruaha National Park, 2014-11-02) Photographer: Elias Bergman Trygg

4. RESULTS

The interview results will in essence be narratively presented. This may seem inefficient but is done in order to facilitate the mediation of the respondents’ experiences both in a synoptical and more detailed manner. A short overview of respondent background information and their current attitudes, as well as basic application information will be shown in a few tables. After 4.1, the result will be divided into a presentation of the two respondent groups, in which the result is divided into four different themes that are connected to the research questions, after how respondents believe that compensation affects their attitudes toward elephants, the government and conservation and what they know about the compensation scheme. As many respondents spoke of the scheme hypothetically in terms of if it would be more functioning, their attitudes would be enhanced. There is a table for each group which shows how they believe a more functioning scheme would affect their attitudes. Four interviews will also be presented of persons who have been attacked by wild animals and of relatives to victims of elephant attacks with deadly outcomes. This is done mainly in order to widen the insight of what these victims know about the scheme in comparison to what is said in the scheme per se. Some quotations from respondents are made to support contexts.

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8 See on page 19-20, how “functioning” is defined in this study. It is partly also defined in the result chapter by respondents.
<table>
<thead>
<tr>
<th>Respondent</th>
<th>Village and Sub-village</th>
<th>Gender, age</th>
<th>Level of education (P.s.=Primary school)</th>
<th>Nr. of people in household</th>
<th>Total area of land (acre) and cultivated area</th>
<th>Occupation</th>
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<td>25 and 6</td>
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<td>P.s.</td>
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<td>1,5 and 3</td>
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<td>P.s.</td>
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<td>10 and 10</td>
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<td>3 and 3</td>
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<td>P.s.</td>
<td>5</td>
<td>10 and 10</td>
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<tr>
<td>13</td>
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<td>F, 30</td>
<td>P.s.</td>
<td>5</td>
<td>9 and 9</td>
<td>Farmer</td>
</tr>
<tr>
<td>14</td>
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<td>M, 50</td>
<td>P.s.</td>
<td>5</td>
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<td>16</td>
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<tr>
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<tr>
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<td>7 and 7</td>
<td>Farmer and pastoralist</td>
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Table 1. Respondent background information. Source: Own compilation of study results.
<table>
<thead>
<tr>
<th>Respondent</th>
<th>Village</th>
<th>Attitudes toward compensation for mitigating HEC</th>
<th>Attitudes toward elephants</th>
<th>Attitudes toward the government</th>
<th>Attitudes toward conservation</th>
<th>If applied for compensation</th>
<th>If Compensation was received and how much (tshs)</th>
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<td>No</td>
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<td>Positive</td>
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<td>yes</td>
<td>Yes, 100,000</td>
</tr>
</tbody>
</table>

Table 2. This table shows respondents’ current attitudes. In the group who has received payments, 8/10 were positive toward elephants (2/10 negative), 8/10 were negative toward the government (2/10 positive), and 10/10 were positive toward the concept of conservation. In the group who have not received compensation, 8/10 were positive toward elephants (2/10 negative), 9/10 were negative toward the government (1/10 was neutral), and 9/10 were positive toward the concept of conservation (1/10 was negative). Source: Own compilation of study results.
Table 3. 18/20 respondents have had crop damages exceeding 1 acre, thus filling the criteria of eligibility for payments according to the scheme documents. Source: Own compilation of study results.

4.1 Efficacy of monetary compensation on attitudes of respondents who have received compensation

Interview results show, at large, that respondents who have received payments consider monetary compensation as a good mitigation method, which induce positive effect on their attitudes toward elephants, the government and the concept of conservation (see Table 2). There were no obvious differences in interview answers between men and women (see Table 1, 2 and 3).

4.1.1 Elephants

2/10 respondents, who were positive about elephants, claimed that compensation would not change their opinions. 8/10 thought compensation would enhance their attitudes, whereof 6 were positive and 2 were negative (see Table 4). The negative respondents emphasized that
they did not dislike the elephant per se, but the damage they bring with them. The positivity toward elephants was motivated by four respondents who emphasized the income elephants bring to the national economy, the enjoyment of seeing the animal, the need for preserving them to future generations and that they are a gift from God and hence must be loved. One also said that the elephants can not be blamed for entering the crop fields, since they are not able to distinguish whose food they are eating – they just eat. Even though these respondents had received compensation at some point⁹ all of them spoke of the current compensation system as dysfunctional in some way. Some of these complaints are summarized below.

4.1.2 The government

6/10 thought compensation would convert their attitudes from negative to positive toward the government. 1/10 had completely lost confidence in the government since they managed the scheme so poorly, thus advising to cancel the ongoing system and start a new one under another organization which is not governmental. Hence, a more functioning compensation system would not affect his current attitudes. 2/10 were positive, whereof one claimed that compensation would not have any effect on his attitudes and 1/10 was unsure (see Table 4). The reason why respondents had little confidence in the government despite having received money is demonstrated by an 80 year old farmer in Tungamalenga. He said that after having applied 8 times in 2009, 2010 and 2013 he went to the village leaders to complain, and was told that If you do not like it, move where there are no elephants (see APPENDIX 2, p. 43). After this he travelled to Iringa town to speak to the Director, whereby he was paid 250,000 tshs. Another farmer in Tungamalenga told what he had been informed by village leaders about how the application procedure works. They said that after crop damage has been inspected, the application is sent to the District office and the Director in Iringa town, where the application is controlled and sent back to the village for the applicant to sign the application. Thereafter it is sent back again to Iringa town, where the application is processed. The applicant then has to wait a long time, and perhaps after a year or more, a couple of names are written on a board in the Village executive office. The names which are written are the ones who will receive money (which is often paid the following year). When the farmer has asked what happened to his application, the answer is either that he needs to wait more, or that the application was lost (see APPENDIX 2, p.41). Apart from this respondent, no one really knew what happened to applications after they were collected by damage inspectors or after the Village executive office took them.

8/10 thought corruption prevented money from reaching applicants. A few said that the MNRT announces every year over the radio that there is a budget set aside for the compensation system, but that corruption from village to parliament level obstructs the system from functioning. In Kitisi and Mapogoro only half the payment of 100,000 tshs reached the ones who were given it. A woman in Kitisi thought this could be explained through corruption (see also APPENDIX 2, p. 45):

⁹ Compensation had never been received more than one time among the respondents, although all respondents claimed to have applied more than once and often several times. They had been informed that money could be paid and applied for, and seemed to believe that money would and should be paid if one applied. Hence it is likely that no one knew that the regulations of the consolation scheme enable the Director to cancel any application if he/she whishes to do so.
“They told me - Apply only if more than 1 acre is damaged and you will get 100,000 tshs – but the ones who got money this year only got 50,000, and I heard people in Tungamalenga received full payment […]”

A present neighbor stated the same thing and told that: *They do not explain why they bring two forms, I think they take one form for themselves and keep 50,000 and we only get 50,000. This is bad because people go poor and hungry.*

“They”, referring to the Village executive office, used to bring one application form in which they wrote the applicant’s name and crop damage data, but in connection with the recent payment in 2014, they used two forms.

In Malinzanga all four respondents contended that when they reported crop damage to the Village executive office, they had to pay 5000 tshs (for renting a motorcycle) to bring staff to inspect the damage. Therefore they ceased to report to the Village executive office, and instead reported to enumerators. Respondents gave prominence to this as the reason why they did not like the government.

Another common complaint explaining the discontentment toward the government, uttered by all respondents, was that the given amounts were insufficient in comparison to crop damages. This is exemplified by a citation from a rice farmer in Isele: *In 2011 one acre of rice would give me one million shillings, but I received 100,000.* Another farmer in Malinzanga applied due to crop damages from 2010 to 2013 (in 2010 three acres were destroyed, in 2011 two acres, in 2012 four acres, and “at least” one acre in 2013) and waited four years until he was paid 150,000 in 2014; *how does the government think I lived between 2010-2014?*, the man said, obviously upset about the situation. The length of time between applications and payments is long, and many (8/10 respondents) emphasized this as a major flaw in the compensation system, often with the motivation that food is lost in harvests10 because of elephant raids, and that food is more expensive to buy the longer the time is after harvest. Thus, many thought it would be good if money was paid straight after harvests so that people would not need to go hungry.

There were perceptions among respondents that the government neglected them, and also that they prioritized elephants before them. Two farmers in Malinzanga complained that when a person is killed by an elephant it may take two days for the authorities to come (quoting one of them): *But if an elephant is killed, they come within a few hours.* Another farmer, former employee of the MBOMIPA, said that during a meeting with the MBOMIPA council he asked them: *Why do one have to pay a penalty of 6 million if an elephant is killed, and get only 1 million if an elephant kills you? Who are the most important –the elephants or us?* The council replied that it was a parliament decision and that it had to be accepted. Moreover, 7/10 interviewees from this group believed that they did not have the power to affect decision-making concerning elephants nor that the government listened to what the farmers had to say.

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10 Subsistence farming is common in the area, and farmers often grow crops to subsist on – and sometimes (depending on numbers of people in household, size of cultivated area, climate and harvest variations) for selling at the market.
or gave them a chance to speak for themselves. These seven respondents did not express exactly how they would like to be more included in the decision-making but implicated that the government should give them a chance to say their opinion and listen more.

4.1.3 Conservation

8/10 interviewees thought compensation would enhance their attitudes toward conservation. Six of these where already positive, one was negative and one was negative toward conservation managed by the government. 2/10 who were positive said that compensation would have no effect on their attitudes (see Table 4). The positive attitudes were motivated by 5/10 respondents who mentioned the importance of conservation in protecting the nature, its contribution to the national economy and the preservation of wildlife for future generations.

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Current attitudes (elephants) –and perceived probable effect of a more functioning scheme</th>
<th>Current attitudes (government) –and perceived probable effect of a more functioning scheme</th>
<th>Current attitudes (conservation) –and perceived probable effect of a more functioning scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Neg.-enhanced</td>
<td>Neg.-enhanced</td>
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<tr>
<td>2</td>
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<tr>
<td>10</td>
<td>Pos.-enhanced</td>
<td>Pos.-enhanced</td>
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</tr>
</tbody>
</table>

Table 4. This table shows respondents’ attitudes under the current functionality (or dysfunctionality) of the scheme, and more importantly, how a properly managed/more functioning scheme would impact their current attitudes. In essence, it is obvious that the respondents think a more functioning scheme would have positive effect on their attitudes, although the present-day tolerance toward elephants and conservational work (under the system being) is relatively high. This may, however, not be the result of the scheme. Source: Own compilation of study results.

4.1.4 Respondents’ knowledge of the consolation scheme

9/10 had been informed that compensation could be applied for in connection with damage caused by elephants; two of these mentioned that they knew of compensation for deaths caused by elephants and the rest knew of compensation for crop damage. 1/9, a former employee of MBOMIPA, knew of compensation due to damage caused by elephants, lion, spotted hyena, and that if a person would be killed by an elephant or a lion, one could receive 1 million tshs. 10/10 claimed to attend village meetings in order to be informed about things regarding these matters. 6/10 knew about the three day rule\(^\text{11}\). 6/10 had been informed to

\(^{11}\)The three day rule is what I choose to name regulation 3. (2) (a) (Maige, 2011, p.98) which states that an applicant must report the damage to the Village Executive Office within three days after occurrence of damage.
report damage to the Village executive office, although 5/10 initially reported damage to enumerators and then to the Village executive office. 4/10 reported damage exclusively to enumerators (whereby the enumerators bring the report to the Village executive office). 3/10 mentioned that they reported damage to other authorities including the sub village chairman, the village chairman or the village agricultural officer. 0/10 had seen the forms which, according the scheme document regulations are ought to be filled in by applicants in case of damage.

4.2 Attitudes of respondents who have not received compensation

4.2.1 Elephants

6/10 positive respondents thought that compensation would enhance their attitudes toward elephants\(^{12}\) (see Table 5). One farmer in Isele said that: *I like the elephants, they bring income to the nation, but I was very sad when they destroyed all my crops.* Similar statements were made by 8/10 respondents, who said that they liked the elephants but feel troubled when they enter the crop fields, and that the elephants should be protected due to the income they bring to the country. 2/10 were positive and claimed that no compensation would affect their attitudes, whereof another 2/10 were negative and believed their attitudes would become positive if they could benefit from the scheme (see Table 5).

4.2.2 The government

8/10 negative respondents presumed that compensation would convert their current attitudes (see Table 5). One of these claimed that if the government would handle the compensation so it helped him and other farmers, he would be willing to reveal poachers: *Many knows who are active in poaching but no one dares to name them, if I would get proper help and compensation from the government I could do it.* 1/10 who was negative had lost faith in the government since he thought they had let the farmers down by not handling the conflict with elephants. 1/10 was emotionally neutral toward the government, as he did not know who was to blame for the system to be failing, but a functioning compensation system would make him positive. 1/10 claimed she was doubtful that the government would ever have the capability of coordinating a good system, so she was unsure if it would change her present-day negative attitudes (see Table 5).

When respondents spoke of the government, they often blamed them for not managing the scheme properly. One common complaint, mentioned by 6/10, was the suspicion that payments did not reach applicants due to corruption. One woman in Mapogoro told that: *The village chairman has three wives, why did they receive 50,000 each and I nothing...All my crops were eaten.*

8/10 thought that it was difficult to get answers to *when* the compensation would be paid and *if* it would be paid, and also that the time between applying and getting information about whether or not money would be paid, is very long. As in the other respondent group, no one claimed to know anything about what happens during the application process after a damage

\(^{12}\) All respondents in this group spoke of the current compensation system as dysfunctional, and emphasized that *if* it *would* work properly, their attitudes would be enhanced.
inspector or the Village executive office have taken care of the applications. Even though interviewees in this group have never received compensation, 3/10 said that if it would be paid, it would be good if it covered the damages and was not so insufficient.

10/10 stated that the government did not care about them or what they had to say about the elephant problem, and that it was difficult to make oneself heard to the government.

4.2.3 Conservation
8/10 were positive and thought compensation would further enhance their attitudes. 1/10 was negative with the motivation that people are making money on what (conservation) is making them (the farmers) poor, but if he could benefit from the scheme he would become positive. 1/10 was positive and said that money would not have any effect on this (see Table 5).

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Current attitudes (elephants)–and perceived probable effect of a more functioning scheme</th>
<th>Current attitudes (government)–and perceived probable effect of a more functioning scheme</th>
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</table>

Table 5. As in Table 4, it is clear that a more efficient scheme would affect attitudes in a positive direction. Attitudes and tolerance toward elephants and the concept of conservation is currently relatively positive/high. Source: Own compilation of study results.

4.2.4 Respondents’ knowledge of the consolation scheme
7/10 had been informed of compensation for damage caused by elephants, and one of these interviewees mentioned the sum of 1 million tshs if a person was killed by an elephant, and one knew that an applicant received different amounts depending on the distance to the WMA. 3/10 knew of compensation for damage caused by elephants and lions. 1/10 lost three of his goats to spotted hyenas in October 2014, and he did not know that one could apply for this. In 2008 one respondent’s cow were taken by a lion, an accident for which she applied compensation for but did not hear anything from the authorities. Another respondent had a cow which was taken by lions in 2013, but did not apply for compensation since he had not been informed about this. 7/10 claimed that they attended village meetings, and the remaining three replied “sometimes”. One of these three, a woman living in the village of Mapogoro, said that sometimes people are not informed when village meetings are going to be held.
because they decide this in the village bar where people drink, and as she did not drink she were seldom given that information. 5/10 claimed to have reported damages either to the Village executive office or enumerators, and one of these also reported to the Village agricultural officer sometimes. 4/10 reported to enumerators and 1/10 reported to the MBOMIPA secretary. 8/10 claimed to have been informed to report damage within three days after occurred crop damage. 8/10 had heard about the three day rule, and 0/10 had seen the forms which are ought to be filled in by applicants in case of damage. Regarding the application process, no one was sure what happened to the application once damage had been reported.

4.3 Interviews of farmers attacked by wild animals and relatives to deceased victims

4.3.1 Interview of farmer attacked by cape buffalo (22/10-14, hrs 12.15-13.00)
This 40 year old female farmer, living in the village of Kitisi, was out in the field working one morning in May 2013. While working she saw a buffalo standing in the distance and when she turned to look around a buffalo, which she had not seen, attacked her. The buffalo tore up a deep wound with its horns from the knee on the outside of her upper leg to her gluteus, according to her exposing bone tissue. She was also hit in the head and lost five teeth. Today she feels pain in the leg and hip and her jaw aches.

When the accident occurred, Director Nhambu was in the nearby village and visited the victim at Idodi village hospital. Nhambu personally promised her that she would be compensated for hospital expenses and transport expenses when travelling to and from the hospital. When she had recovered Nhambu visited her for an interview, whereby she showed Nhambu all the receipts from the hospital and transportation expenses. Nhambu claimed she sent them to the former Minister for MNRT, Kagasheki, who would decide on the matter. After some time Nhambu returned to Kitisi for taking crop damage applications, whereby she informed the victim that she had sent the receipts to the Minister. During the next visit the victim asked her what happened to the receipts, and was told to wait for decision by the Minister.

Furthermore, this respondent was an employer of the MBOMIPA and during a council meeting held in Kitisi in 2012, Nhambu informed that if one is killed by a lion or an elephant, a sum of 200,000 would be paid to the family. When the others attending at the meeting complained about this insufficient amount, Nhambu replied that maybe a million could be paid.

4.3.2 Interview of farmer attacked by lion (22/10-14, hrs 13.04-13.21)
This 53 year old man was a victim to lion attack in august 2013. He was on his way to his crop field circa 21.00 in the evening. On the way there he met staff members of The Ruaha Carnivore Project (a local NGO) who were busy tracking a lion. Suddenly the lion attacked him, but after a warning shot fired by the staff, it disappeared quickly.

He did not know of compensation for lion attacks, but reported the accident to the Village executive office, but they did not inform him or do anything. Today he has scars on the side of his thigh and gluteus, something which he says hurts and handicaps him.
4.3.3 Interview of relative to family member killed by elephant (24/10-14, hrs 13.15-13.30)

On the 13th of May 2013, the husband (a 58 year old man) of this respondent, a 50 year old woman, was killed by an elephant when working in his crop field. The attack was reported and the WD paid a sum of approximately 1.1 million tshs. In excess of this, the WD also paid for the funeral and food. The 1.1 million was divided between four wives and eight children. The respondent told that after the accident, many relatives whom they did not know so well visited her in the hope of taking part of the compensation payment. This was troublesome to deal with. Instead of paying a sum of money, she advises that it would be much better if compensation was given in the form of a newly built house or school fees paid for the children. The reason why the WD paid for funeral and expenses due to this was because the man was active working for the MBOMIPA.

4.3.4 Phone interview with relative to person killed by elephant (1/11-14, hrs 19.00-19.15)

The uncle, a man in his 70s, of this 35 year old male respondent was killed by an elephant on his way to the farm on the 15th of July 2014. Although this respondent did not know how to apply, he knew that there was a possibility to receive money (1 million tshs, after being informed by an enumerator) if a relative was killed by an elephant. He and his family did not bother to report the damage because police, doctors and people from the WD was there after the accident, thus they knew about the accident and he waited for them to do something about the accident in terms of payment. The respondent feared that it would not be rewarding to try and get the money, since the payment would be little in comparison to what had happened and that they maybe would not receive anything. Moreover, he claimed that applying a few months after the accident would mean that he would have to go to Iringa to meet the Director, a trip which is too expensive for him.

5. ANALYSIS AND DISCUSSION

5.1 Comparison of respondent group results

Monetary compensation was considered as a good way of mitigating HEC among most respondents. The overall attitudes of the group which had received payments were not distinctly different from the group which had not received. This may have to do with the fact that most respondents, in accordance with the study of Ogra et al. (2008, p. 723-724), believed that payments were too meager and not close to compensating damages, thus not influencing attitudes to a noticeable extent. Both groups suspected the government of being corrupt and obstructing the compensation system, which can be considered as a fundamental reason for the negative attitudes among the respondents. Even though there were indications of ongoing corruption this was never proved, but as mentioned in other studies (Ogra, ibid.; Hoare, 2012, p. 67-68; Nyhus et al, 2005, p. 113) corruption is a major issue in the management of these schemes and the need for a transparent system is crucial in order to
avoid abuses. Due to the different narratives from interviewees about who is inspecting damages and who takes care of damage applications, as well as the ignorance among recipients of what happens with applications during the application process, it would be far-fetched to state that this system is transparent. There is a lack of systematic organization of the scheme, as well as proper communication of information from the WD to people living near protected areas, which may increase the risks of manipulations of the system.

The fact that interviewees from both groups are positive toward elephants and the concept of conservation is not corresponding with former studies treating the exclusion of natives from protected areas (Robbins, 2007, p. 705-706; Igoe, 2002, p. 594) or the statement that rural Africans have little sympathy for wildlife (FAO, 2009, p.16). In fact, it is not wrong to claim that the respondents of this study are tolerant in relation to what they have to pay and sacrifice for coexisting with wildlife, in terms of food and economic security and the risking of their lives when working in the fields. It is remarkable that these persons foster positive feelings toward elephants and conservation when they receive as little support from the government as they contend through interviews. Adding the circumstance that the villages these people live in were built upon the governmentally operated eviction of many of them (or their ancestors) from their former home the Ruaha National Park, makes their positive perceptions admirable. However, it is not confirmed how many are familiar with this history.

Very often, regulations (and boundaries) are set from outside the community, written in plans that local people never see by faceless government officials, advised by scientists whose expertise is untestable, remote and not always sound (Adams, 2009, p. 289).

It is obvious that the information that has been communicated to respondents indeed is minute compared to what is written in the scheme documents, and there was no distinct difference in knowledge between the two groups. It is clear that the information and regulations written in the scheme documents have been withheld from the victims or that the information has not been spread throughout the Wildlife Division staff who manages the scheme. Respondents had not been informed that they could disapprove to the Director or the Minister if payments were denied, although a few said that it would be very difficult to contact them, especially the Minister. I think I have to agree with this statement, it would be highly surprising if the Minister of the Ministry of Natural Resources and Tourism, Lazaro Nyalandu, would have time to engage in this issue. With regard to the apparent deficiencies of the organizational/logistical structure and management of the scheme, it would be somewhat surprising if Nyalandu would receive an application, grant it and send it back to the Director whereby she would travel to the village and pay the applicant the money. As in the case of the woman in Kitisi, who was permanently injured by a cape buffalo, it is obvious that the Minister did not receive any receipts/application or that he did not take care of it. Luckily for Nyalandu, respondents of this study have not been informed that they can question application disapprovals like the regulations proclaim they can, otherwise he might have been quite busy doing some paperwork by now.

The fact that no interviewee has been informed about their rights to disapprove, means that the Director Nhambu has violated regulation 9.- (1): [...] the Director shall not vary or disapprove claims under these Regulations without having given the applicant an opportunity to be heard. As respondents have claimed, they experience that the government does not
listen to them and that they do not know how to make themselves heard. Hence, they are not only victims of the HEC, but in a sense also victims of the abuse of this regulation. In correspondence to what Bebbington (1999, p. 2022) writes about accessing assets and turning them into capabilities, respondents of this study are in a bad position of doing so: If the government, who are responsible both for the management of the wildlife and the compensation scheme, do not do their job in mitigating HEC e.g. through payments, it means that farmers will struggle more to make good harvests and make decent livelihoods. From the Bebbington perspective, it means that if farmers are prevented from benefitting from their asset (crops) they can not transform it into a capability such as power – the power to be heard and affect the rules that govern the control, use and transformation of resources (ibid., p. 2022). Also, drawn from the conclusion that the interviewees have little opportunity to be heard by the authorities, one can state that they are obstructed from affecting their own livelihoods and circumstances of life as farmers.

As Hoare (2012) calls attention to, this study also shows a risk of creating enviousness among recipients if only a few receive payments. This was particularly evident in Mapogoro and Kitisi where applicants had only received half of what was promised. There were indicators of enviousness toward a neighbouring village in which people had received full payments, and enviousness within the two villages toward the people who received the 50,000 tshs. A circumstance like this may cause internal conflicts within (and between) villages and the scheme might do more harm than good (Nyhus et al, 2003; AFESG, 2007). Indicators of social conflicts such as these show that HEC not necessarily need to be between humans and wildlife, but also between humans about wildlife, as stated by Bergman Trygg (2014, p. 18) and Madden (2004, p. 249). However, the most evident conflict showed in this study may be the strained relation between farmers and the government, which is manifested in respondents’ perceptions of an alienation from the authorities and the decision making of matters which control their lives. This perceived alienation and powerlessness can be identified as one of the most fundamental issues in this particular HEC, and I believe that farmers need to be more included in the decision making concerning wildlife conflicts and conservation. The Wildlife Division may also need to revise the management of the scheme in Idodi and Pawaga Divisions, for instance in terms of correct and honest information dissemination of the scheme to villages. This is after all one of their main tasks as a government agency.

**Further deficiencies of the scheme**

From the discussion above, it is quite clear that applicants have little opportunities to make themselves heard and affect application disapprovals made by the Director. When reading the document it becomes clear that all power lies in the hands of the Director. This is showed through 7.(3) and 3. (b) (Maige, 2011, p. 100): *The Director may reverse a decision for consolation made upon […] satisfying himself that the initial decision was incorrect.* This is further clear through 8. (ibid., p. 100): *The Director may at any time […] vary or disapprove the amount claimed.* According to these regulations it is thus evident that the Director basically can, if she feels like it, choose not to pay an applicant regardless of the extent of damage the victim has been exposed to. Furthermore, as the regulations contend, it seems like
she can choose to vary or disapprove payments. This might have been what happened in Mapogoro and Kitisi. The regulations involving an applicant’s opportunity to be heard (which in essence is none) and the Director’s power to govern the rules, may be an attempt by the government to show the public that rural people of Tanzania are not standing outside wildlife conservation management, but are embraced and taken care of by the government. Nevertheless, this feels more like a political grandstanding ironically manifested in that the government does not manage to prioritize or take care of its rural citizens in the issue of HWC.

If one should trust that the MNRT announces every year that there is a budget for the scheme (Appendix 2), it can be considered as problematic that the Director has this type of power to control payments; it makes the money more vulnerable to corruption. The lack of transparency here is an issue, and identified by Nyhus et al. (2003, p. 40) as a common but serious problem due to implications of compensation schemes.

Nyhus also identifies the importance of “Clear rules and guidelines” (ibid.) in a scheme in order to make the system work. When reading the scheme documents it is obvious that it does not contain rules and guidelines of that kind. Indeed, they are quite difficult to understand. Yet, I have managed to drawn a couple of conclusions from it:

- The fact that the Director is ought to inspect all damages is absurd. There is no way she would have time to inspect all the damages in the District for which applications have been made. Why The MNRT leaders choose to write so is unknown and probably decided upon irrational reasoning. This has led to the “employment” of voluntary workers, such as the man in chapter 3.8, and taking advantage of NGO:s such as the enumerators working for The Wildlife Connection.
- The scheme documents claim that compensation can be paid for loss of domesticated animals and their offspring, such as their eggs (if the eggs were destroyed by any of the dangerous animals). A fundamental question here is how the Director would ever decide what animal caused the damage. It is, though, unlikely that any of the animals mentioned in the documents would go after some eggs. Again, this might be a grandstanding and masquerade.
- A dangerous animal mentioned in the document is the Black rhinoceros. This animal is dangerous, but so few exist in the wild that they almost never encounter humans, hence posing a minimal threat to the livelihood of farmers. It seems like the MNRT have chosen to exclude some of the animals which cause the most severe damage, including baboon (Papio Anubis) and bushpig (Potamochoerus larvatus), whereof the latter one is responsible for more crop damage than the elephant in many African countries, including Tanzania.
- The fact that the regulations of the scheme argue that the applicant should use forms set out in Schedule 1 and 2 to apply to the Director, is also a strange matter. Many of the applicants have low education level or no education whatsoever, making this quite impossible. The whole document is also in English, making it impossible for applicants to understand regulations and provisions. As showed in the result, no respondent had ever seen schedule 1 or 2. Regarding these forms, parts of them are obscure and ambiguous; for example, there is no clear provision which require
information about the extent of damage, but only a description of it, which can be interpreted in many ways. Even though a respondent would happen to hold good English skills, it is quite easy to exaggerate damage information when filling in the form, thus abusing the system. Again, like Nyhus (ibid.) claims, the need for clear rules and guidelines is relevant here.

5.2 Hypothesis responding
From the result, it is quite clear that the majority of participant respondents do not consider the compensation scheme as beneficial nor functional. Frustration was also expressed by many due to the various dysfunctionalities of the scheme, but there were also voices claiming that not much is needed for the farmers to feel seen or consoled in the issue. If the stress and anxiousness i.e. related to waiting long periods of time for perhaps receiving a relatively small sum of money, outweighs the possible profit of receiving compensation, is best to be remained unsaid in this study. Nonetheless, if the WD would take a few simple steps in their management of the scheme, for instance improving their dissemination of information to villagers, the scheme would be likely to have a more positive effect on respondents’ attitudes and work to mitigate HEC.

6. CONCLUSION

- Does the compensation scheme mitigate the HEC?

It would be far-fetched to say that the compensation scheme has a mitigating effect on the HEC which respondents have experienced, since the differences between attitudes of the two groups are too minute. However, only a fraction of the respondents argue against the use of this scheme and almost all claim to be positive about the concept of compensating HEC. To cancel the scheme would maybe thus affect HEC in the study area negatively, as farmers would feel more ignored by the government and a risk of a farmer to act against the elephant in retaliation would perhaps increase.

- Are the attitudes of farmers toward elephants, the government and the concept of conservation affected/changed when their crops are damaged by elephants, and they receive compensation? (In what ways are their attitudes affected/changed?)

There is a tendency which shows that the group which at some point had received payments had somewhat positive attitudes toward the government, in terms of feeling heard by the government and being able to affect decision-making of problems concerning elephants.

- Is there any difference in attitudes between farmers who have received compensation and farmers who have not?

The group who had not received payments was slightly more negative toward the government than the other group. If this is due to monetary compensation, or other
variables, can not be affirmed through this study. It can, nonetheless, work to demonstrate a possible advantage of using this scheme.

- **What do farmers know about the compensation scheme in comparison to what information is found in the scheme documents?**

The farmers who participated in this study knew little compared to what is written in the scheme documents. There are indications that farmers have been incorrectly informed of criterions for eligibility of payments. Since the regulations and provisions of the scheme documents seems to be set from outside the communities and never showed to the respondents, the farmers are inadequately informed about when they can apply for compensation and are in this state of ignorance not equipped to affect the decision-making concerning the management of the scheme.

**FUTURE RESEARCH SUGGESTION**

Questions which could not be fitted into or untangled in this study, but which would be interesting for future research, could be:

- To do a similar, but more extensive quantitative study in the study area or in the whole country of Tanzania.
- To investigate how much money is put aside every year on national and district level for the scheme, and to find out if anything is lost due to corruption or other state of affairs.
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Voluntary worker of MBOMIPA, male, 2014-10-20 (hrs 09.15-09.30), Idodi village
APPENDIX 1, INTERVIEW QUESTIONS

Background questions:
Village:
Subvillage:
Name?
Gender?
Age?
Level of education?
Occupation/sources of income?
Numbers of people in household?
Total area of land? Cultivated area? Area affected by elephants?
Is any project active in your village?
How long have you lived in this village? How come you moved here?
Have you noticed any difference in the conflict with elephants during your stay in the village?
Has it intensified, if yes – why do you think it has?
Renting/owning land:

Interview questions:

1. Do you know about the existence of the consolation/compensation scheme? What do you know about it?
2. Are you attending village meetings when these are held?
3. What are your general opinions about the opportunity of receiving money if your crops are damaged?
4. Are your attitudes toward elephants positive or negative?
5. Would compensation affect/change your attitudes toward elephants?
6. Have your crops been damaged by elephants? How often/how many times per month and year? Since 2009?
7. How did you come to the conclusion that damage was caused by elephants? (feces, sight observation, other?)
8. Do you know how much was damaged?
9. Did you report the damage to anyone?
10. If you did not receive compensation –why do you think you did not?
11. If yes - did you receive it? How long did it take before you received it?
12. Did the received amount compensate the crop loss?
13. Do you think it is easy to apply for the compensation? (is it time consuming or difficult in some way?)
14. Do you have faith in the government? Are your attitudes positive or negative about the government when it comes to helping you in this problem?
15. Do/would a possibility of receiving compensation change your attitudes toward the government?
16. Have your attitudes toward the government changed if/when crops have been damaged but you did not receive compensation when applying for it?
17. Do you think that compensation is a good way of mitigating HEC?
18. What are your opinions about conservation? (is conservation good/bad, why?)
19. Do the possibility of receiving compensation change your way of looking at conservation? How?

20. Do you think you have enough power to affect decision-making concerning elephants and the problems they cause? Would you like to be better included? How?
21. If you think about your situation with the elephant right now, would you feel willing to support conservation efforts for them?
22. Did you know that you have to report damage to village officer within three days after occurred damage, and have you done so?
23. Did you apply to the director with this form (show schedule 1 and 2) after having it verified by wildlife officer or agricultural?
24. Has the director been here for inspection of damage?
25. Have you been informed if you were denied compensation or received it? When did you get this information after occurrence of damage?
26. Did you know that you could disapprove to director or minister within 30 days after decision of payment, if your application was denied –and have it reconsidered?

27. Do you feel that your attitudes and opinions about what we have spoken about are important, if the government care about them?
28. Have you been informed that one can also apply for compensation for damage caused by hippopotamus, spotted hyena, lion, nile crocodile, black rhinoceros, buffalo? Did you know that if a cattle or other domesticated animal/animals is/are killed by these animals, you can apply for compensation? Did you know that if you are injured or someone is killed, you can apply for compensation?

Do you have something to add?
APPENDIX 2, SEGMENTS OF RESPONDENT NARRATIVES

Respondent 1 (2014-10-21 kl. 08.10-9.10)
Village: Tungamalenga

In total owning 27 acers distributed on four crop fields in a few different villages, half of them (14.5 acres) are affected by elephants whereof one is seldom cultivated due to crop raids by elephants. Level of education was Standard 4, and 7 people currently lived in his household.

A project conducted by an organization called Carnivore Project was active, since they built bomas for his cattle (“bomas” are inclosures for livestock). He has lived in Kinyari since 1974, and moved there because of fertile soil. There is a big difference in conflict nowadays, before elephants were seldom seen, not even when I cultivated close to the National Park, he says.

He knows that there is a system through which one can receive compensation due to crop damage caused by elephants, and that you should be able to receive compensation if less than five acres are destroyed. He is not certain if this system became active in 2008 or 2009. His crop fields are vulnerable to elephants because they are located so that elephants need to cross them in order to get to other fields, so his crops are more or less affected every year. He harvests before crops are mature so that more will not be destroyed by elephants to risk even greater harvest loss. During the past five years he has applied several times, with damages reaching a few acres, but he has never received compensation. Damages were earlier reported to a secretary in MBOMIPA but since the past two years he has applied to the Village executive officer. He is attending village meetings, and believes monetary compensation in general is a good idea if crops are damaged by elephants.

Elephant crop damage has been accessed through tracks, feces and - during the dangerous business of protecting the fields with sticks during night – also through sight observation. When asked why he thought he had not received compensation, he said he had no idea.

Although his attitudes toward elephants are mainly negative, he addresses the need to protect them for further generations. For the government however, he had little trust and negative attitudes because he thinks they put too little effort in helping them. He exemplifies this by telling how he has been informed the application procedure normally goes: First, farmers report damage whereby applications are sent to District office in Iringa Town, which look at the applications and send back them to the villages so that the farmers can sign the applications, and send them back again to the District office. Often after a long time of waiting, a few names are put on a board in the village which says who is going to receive compensation. When they ask what happened to their applications, they are told their application and names were lost in the process. This is why he does not trust the government very much.

His attitudes toward conservation are also negative, as some people make money on what (referring to conservation) makes them poor. Moreover, he is convinced that if they were given more help or more compensation for this, he would be positive both toward the animal, the government and the concept of compensation. Applying for compensation is quite difficult, he says, and nobody has ever come to inspect damages. No information had been given to him that he had the right to disapprove to director or minister within 30 days after
crop damage, neither did he know about the three day rule, nor that he could apply for money if his crops are damaged by other animals and if his cattle are killed (which happened last year when his cow was killed by a lion). The level of power to affect decision-making regarding HEC is very low, he claims, and that: *When village leaders has sent park rangers to guard the fields, but often they just stay in the village bar drinking instead.*

**Respondent 2 (2014-10-21, kl. 09.30-10.24)**

*We do not need much to feel seen.*

The fourth respondent was a 45 year old female farmer living in the village of Tungamalenga and subvillage of Oficini. With a Standard seven education and three more people in the household, she has lived at this location since early childhood. In total owning 25 acres of land, whereof 5-6 acres are cultivated by her and the remaining is rented out. She knew of active projects run by the Wildlife Conservation Society and education projects, for instance through TANAPA which had built schools in the area. HEC developed in 2004, before this year there were no problem.

She knows that a compensation system started working in 2009, and that after a WMA secretary had measure damages to ¾ of an acre and 0,95 acres\(^{13}\), she found out that 1 acre had to be damaged in order to receive compensation. She is attending village meetings to receive information about this compensation system, among other things.

Regarding the compensation system, she thinks that corruption is occurring both at village, district and ministry level and that money is lost because of this. Hence, she is negative about this system since it does not work. Attitudes toward elephants are positive, and compensation would not change them, because the elephants are very important to the nation’s economy, schools have been built by TANAPA partly because of these animals she says, and so we should protect them.

Crop fields were raided in 2011 and 2013 during several occasions, and the damages were accessed through tracks and feces. These damages were reported to the WMA secretary. Furthermore, she questions why it is not possible to receive compensation if half an acre is destroyed. A compensation of 50 000 would be good then, and these limits are making it difficult for her to take part of the system. Although her attitudes both toward elephants and conservation are positive, they are different toward the government. She says it is frustrating that they can not get more help and that the authorities are not listening or giving them attention or consolation - *We do not need much to feel seen.* They claim they do not want to complain so much about the government, since it might be risky.

Furthermore, she knows about the three day rule, but did not know about her rights to disapprove compensation denials, nor had she seen the director inspecting damages in the villages. Elephants were the only animal she was informed of in the compensation scheme; the other animals mentioned in the document did not she know about.

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\(^{13}\) Inspectors use steps to measure crop damages, due to the lack of technical equipment (Felisto Kabonyela, 2014-10-17). It is possible that the size of an inspected damage may vary depending on who is counting.
Respondent 3 (2014-10-20, 10.45-12.13)

If you do not like it, move where there are no elephants.

Respondent one was an 80 year old farmer (male) living in the subvillage of Mbuyuni in Tungamalenga village. He had finished Standard four education (former primary school education system), shared the household with seven people and owned a total of 109 acres in Mbuyuni (of which 9 acres where cultivated) and 12 acres in the village of Mapogoro which he rented out to other farmers. He had stayed in this subvillage since 1950, shortly after he and his parents moved out of Ruaha National Park to find more fertile soil at the location he now lives. He was aware of one organization, The Wildlife Connection, which had active HWC mitigation projects in this village. The level of conflict with elephants has risen significantly since 1950 maybe because the number of elephants in the park has increased, he says however, six years ago, many elephants started coming to the farm and from then the elephants has been very problematic each year.

He possesses no knowledge of the compensation scheme which this study seeks to investigate, even though he mentioned a compensation system which started working in 2009. Before 2009 one would call park rangers who would come and guard fields during the night. He is attending village meetings to take part of information spread about compensation. As the scheme looks now, it is not very beneficial for farmers as it does not work properly. His attitudes toward elephants are negative, he claims at first, but then changes his mind a bit: I like the elephants, it is the damage they cause I do not like. His general attitudes toward wildlife are in fact very positive, and he says he genuinely likes wild animals. However, if the compensation system worked and he was sufficiently compensated without waiting too long for the money, he would be more tolerant toward elephants. Elephants cause damage to crop fields every april-june before harvest, and usually they enter the fields 3 times per month inflicting more or less damages each time. He has seen footprints, dung and affirmed their presence through sight observation while guarding the field. On question seven he says that elephants destroyed six acres in 2012, three acres in 2013 and 4 acres in 2014. After crop raids, which often occur during nights, he reports to the Village executive officer the morning after.

In 2009 he applied two times for crop damage (no compensation), in 2010 three times (no compensation), in 2011 and 2012 he did not apply as he thought it did no good, in 2013 he applied three times and received a compensation of 250 000 shillings in 2014 after having visited the Wildlife officer in Iringa town. It is unclear to him which year this sum compensates for, but it is insufficient. For example, he argues, that a sack of grain sells 45 000 shillings averagely, and one acre normally produce seven sacks. That is 45 000 * 7 = 315 000 shillings. For damage size during 2012, 2013 and 2014 this is a sum of 45 000 * 13 = 585 000 shillings, which has been lost in harvest due to crop raiding by elephants. These are direct losses, wherein indirect losses connected to labour costs are not included. When contacting the Wildlife officer (Rachel Nhambu) regarding why no compensation had been paid for other years, the response was that the applications were lost. It is strange that money is seldom paid, he says, since the government informs every year through media that there is a budget for this compensation system.
Furthermore, he claims that the main problem of the scheme is that one seldom receives compensation, and when one does, it far from compensates crop damages and is often delayed. The delay in payment means that it becomes difficult to send grandchildren to school and life becomes difficult because of lack of money for food. It would be good if compensation could be paid soon after harvest as food is cheapest this time of the year. If this could be done, his attitudes both toward the government, conservation of elephants and toward elephants would be enhanced, as well as his will to support conservation efforts. Even though the farmers in the area complain a lot to the government, they seldom listen, especially at district level. It is good when park rangers are sent by the Village executive officer to protect their fields, but essentially he does not feel that he can affect decision-making concerning elephants and the problems they cause. During the interview he mentioned an occasion where he and other farmers complained to the authorities why no compensation was given, and they replied: *If you do not like it (the compensation system), move where there are no elephants.*

Regarding the regulations of the official consolation scheme, he did not recognize the form (First Schedule and Second Schedule) and have not had any document verified by a wildlife officer or agricultural, nor was he informed about the three day rule The Director had never inspected damages; it was mostly enumerators who did this. Information of whether or not compensation will be given is often provided between 1-2 years after application, and he had not been informed that he had the right to disapprove a decision of a denied payment to the Director or the Minister within 30 days after occurred damage.


This male farmer was 84 years old, living alone in his house in the village of Tungamalenga and subvillage of Sahanati. After finishing Standard six school, he started working as a carpenter and eventually as a driver for TANAPA 1964-1997. He has lived at this location since 1964 and started working as a farmer in 1997 because of the fertile soil in the area. In total he owns seven acres of land and cultivating two. A considerable increase in HEC has occurred since he moved there, a result of more elephants, he thinks.

He knows that there is a system to you can report crop damages to the Village executive officer, whereafter enumerators control damaged areas, but can not recall when this system became active. He is always attending village meetings, and in general, he believes that monetary compensation is a good solution to compensate crop damages.

His attitudes toward elephants and conservation are positive and are not affected by the possibility of receiving money. On questions regarding the government, he first hesitated, but further into the interview he said that *if current compensation would be sufficient and not take long time to receive, I would be positive about them.* Moreover, he thinks that the current system and the difficulties in receiving compensation – makes people engage in poaching because of lack of food and money due to crop loss.

Crop damage is caused by elephants every year between april-june, and the most damage they have caused did not exceed 1 acre. Despite this he received compensation, 100 000 shillings in 2012, after applying many times during a couple of years. It is easy to apply at village level, but after this he does not know what happens to the application and what
governmental organs manage the application procedure. On question 19 and 21, he believes that he, as a farmer, has little power to affect decision making regarding the elephants, and that it would be good if the government helped more since it becomes difficult to afford food under these circumstances. Furthermore, he suggests that it would be more sufficient to take some park rangers from Ruaha National Park to help during in the crop fields during the most difficult months.

Regarding the document regulations, he had not heard about the three day rule, but always applied the day after occurred damage. Neither had he seen Schedule 1 and 2 from the consolation scheme, and crop damages had only been inspected by enumerators, and never by the director. He had also never been informed that he could disapprove to the director or minister within 30 days, but he was not sure this would be possible since information about whether or not he had received compensation often came after 1-2 years.

Respondent 5 (22/10-14, 08.38-09.20)
Village: Kitisi, Subvillage: Kitisi

They said - Apply only if more than 1 acre is damaged and you will get 100 000 tshs – but a few people this year only got 50 000. In Tungamalenga they got 100 000 at least. This is terrible because people are poor and suffering.

This 37 year old farmer had been informed during village meetings of the abovementioned criteria of 1 acre = 100 000 tshs. This year, he received a payment of 50 000 tshs, two years after he applied. Even though the conflict with elephants has remained unchanged since he was born in the village, his attitudes toward elephants are positive and monetary compensation would not affect them because TANAPA builds schools and helps to compensate villagers through projects, although no money is paid.

Since 2002-2013 his land has been raided by elephants at least two times per year (which he verified by tracks and feces). Damages seldom exceed 1 acre, but when it has, he has not been paid anything except this year. Why payments have been absent is not known to him, and regarding questions on how he perceives the government he first replies that since he does not know if they are obligated to pay, he should not announce his opinions about them. Further on during the interview it is clear that he is not happy about how the government handles the elephant issue, and suggests that it is better if the government cancelled the scheme and that some other organization would be in charge instead, because apart from the government, other organizations seem to listen to their problems. For instance, when an organization used piri piri fences (chili fences) and motor oil fences and these methods proved not to work as deterrents, the farmers complained whereby the organization built beehive fences which helped the farmers efficiently.

His attitudes toward the concept of conservation are positive and would not be changed anyhow through monetary compensation, and in the situation being he would be willing to support conservation of elephants.

His knowledge of the criteria of the scheme is limited. He did not know of the three day rule although he always reported damage morning after damage. Information has not been
communicated to him that he has the right to disapprove to the Director or Minister within 30 days. He had he not been informed when he was denied compensation, but in 2013 he was informed that he would be paid for the damages in 2012 (which he eventually received in 2014). Nor did he now that one could apply for damages caused by other animals, but only for crop damage caused by elephants.
APPENDIX 3

THE IMPORTANCE OF GEOGRAPHY IN RUHA NATIONAL PARK

Ruaha Park is extremely interesting as it represents the transition zone where southern African and eastern African species of flora and fauna overlap. Due to this, Ruaha has a unique variety of animals, birds and vegetation.

It boasts the most southerly protected area where Grants Gazelle, lesser Kudu and Striped Hyenas occur. One of the special attractions to Ruaha Park is that visitors are able to see both lesser and Greater Kudu and Sable and Roan antelope in the same area.

A small portion of the park, about 20% is along the Great Ruaha River, this is thought to follow an ancient finger of the Great Rift Valley system of Eastern Africa. This lowland area, approximately 1,000m above sea level, comprises mainly Combretum/Commiphora and Acacia woodland, interspersed with areas that are abundant with majestic Baobab trees.

This is most likely to be the area you will be game-driving in, on your stay in the Park. It has outstanding game viewing possibilities and spectacular scenery.

Mjombo woodland with its attendant fauna occupies a large portion of Ruaha Parks. Due to this convergence zone, Ruaha enjoys a vast array of flora with over 1,650 species recorded so far. In comparison, Selous has about 830 species recorded and N.E Serengeti 410.

The rest of the park, which forms the majority, is formed by a plateau which rises 100m or higher, to the north and west of the Rift Valley area. Here the dominant vegetation is Mjombo Woodland. In the far western corner of the park, there are hills forming the Isunkaviola plateau area rising up to over 1,800m.

*Photo taken at the main entrance gate to Ruaha National Park (2014-11-01). Photographer: Elias Bergman Trygg*
APPENDIX 4, RESPONDENT INTERVIEWS
Respondent 1, male 74 years old, 2014-10-21 (hrs 08.10-9.10), Tungamalenga (subvillage: Kinyari)

Respondent 2, female 45 years old, 2014-10-21 (hrs 09.30-10.24), Tungamalenga (subvillage: Oficini)

Respondent 3, male 80 years old, 2014-10-21 (hrs 10.45-12.13), Tungamalenga (subvillage: Mbuyuni)

Respondent 4, male 84 years old, 2014-10-21 (hrs 12.35-13.45), Tungamalenga (subvillage: Sahanati)

Respondent 5, male 37 years old, 2014-10-22 (hrs 08.38-09.20), Kitisi (subvillage: Kitisi)

Respondent 6, female 35 years old, 2014-10-22 (hrs 09.30-10.05), Kitisi (subvillage: Kitisi)

Respondent 7, female 31 years old, 2014-10-22 (hrs 10.12-10.43), Kitisi (subvillage: Kitisi)

Respondent 8, male 34 years old, 2014-10-22 (hrs 11.04-11.46), Kitisi (subvillage: Kitisi)

Respondent 9, male 72 years old, 2014-10-23 (hrs 08.13-08.48), Mapogoro (subvillage: Longemba)

Respondent 10, female 50 years old, 2014-10-23 (hrs 08.55-09.30), Mapogoro (subvillage: Mapogoro A)

Respondent 11, female 37 years old, 2014-10-23 (hrs 09.36-10.07), Mapogoro (subvillage: Mapogoro A)

Respondent 12, male 43 years old, 2014-10-23 (hrs 10.16-10.50), Mapogoro (subvillage: Kisiwani)

Respondent 13, female 30 years old, 2014-10-24 (hrs 08.41-09.22), Malinzanga (subvillage: Mloa)

Respondent 14, male 50 years old, 2014-10-24 (hrs 09.36-10.16), Malinzanga (subvillage: Ndorobo)

Respondent 15, female 56 years old, 2014-10-24 (hrs 10.28-11.02), Malinzanga (subvillage: Ndorobo A)

Respondent 16, male 50 years old, 2014-10-24 (hrs 11.08-11.48), Malinzanga (subvillage: Majengo A)

Respondent 17, male 30 years old, 2014-10-24 (hrs 14.53-15.18), Isele (subvillage: Bingama)


Respondent 19, male 29 years old, 2014-10-24 (hrs 15.53-16.25), Isele (subvillage: Bingama)
Respondent 20, male 34 years old, 2014-10-24 (hrs 17.09-17.34), Isele (subvillage: Bingama)

Farmer attacked by cape buffalo, 2014-10-22 (hrs 12.15-13.00), Kitisi (subvillage: Kitisi)

Farmer attacked by lion, 2014-10-22 (hrs 13.04-13.21), Kitisi (subvillage: Kitisi)

Relative to farmer killed by elephant, 2014-10-24 (hrs 13.15-13.30), Malinzanga (subvillage: No data)

Relative to farmer killed by elephant (phone interview), 2014-11-01 (hrs 19.00-19.15), Mafuluto, (Subvillage: No data)