



WILDLIFE DAMAGE IN VILLAGES SURROUNDING THE SERENGETI ECOSYSTEM

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ABSTRACT

Human–wildlife conflict is one of the biggest challenges facing conservation in Tanzania and throughout the world. In this study, human–wildlife conflict was examined through the assessment of wildlife damage in villages surrounding the Serengeti ecosystem. Data were obtained through analysis of reports available at the Zonal Anti-Poaching Unit of Serengeti and key informant interviews. A total of 110 reports were reviewed. Most damage was from crop destruction (66 percent) while less damage resulted from livestock depredation (4 percent). Elephants (*Loxodonta africana*) were responsible for most damage (57.4 percent) that occurred between 2011 and 2014 with little damage (0.8 percent) caused by leopards (*Panthera pardus*). The crops most frequently destroyed by wild animals were maize and sorghum (with 153 hectares and 116 hectares destroyed respectively during the study period. High monetary loss was sustained from tomato cropping, TZS 176,004,825 (ca. USD 88,002.4), which was attributed to its high yields (12.41 tonnes/ha) and high market prices (1,550 TZS/kg). Wildlife officers used several methods to control problem animals including scaring and killing. Inadequate resources were identified as a key challenge to problem animal control. Other challenges were political interference and inadequate collaboration amongst staff from wildlife conservation agencies.

Keywords: human–wildlife conflicts, problem (damage-causing) animals, Serengeti ecosystem

INTRODUCTION

Wildlife plays a significant role in the development of rural local communities. Through wildlife-based enterprises such as tourism, local communities benefit from employment, improvement in social infrastructure and income generation (Hahn & Kaggi, 2001; Masinda & Rathore, 2011). Despite these observable benefits to local communities, wildlife still negatively affects locals through crop damage (and the threat to food security), human injuries and deaths, livestock depredation and property damage (Malugu et al., 2011; KWS, 2013).

Despite the fact that human–wildlife conflicts are a worldwide phenomenon they are predominantly common and well documented in areas adjacent to protected areas (Gillingham & Lee, 2003; Le Bel et al., 2011). In Tanzania, for example, local communities living adjacent to protected areas were found to have a

negative attitude and feelings towards wildlife largely as a result of the damage they sustain (Gillingham & Lee, 2003). It is claimed that in some places in Tanzania wildlife account for up to 90% of crop damage (Saru, 1997; Kideghesho, 2008). For example, up to 90% of the crops in Rombo District were destroyed by elephants (Kideghesho, 2008). The undocumented risk of injury or death to farmers who guard their crops at night should also be noted. Apart from crop destruction, livestock predation ranks as the second major damage inflicted by wildlife in Tanzania (Holmern et al., 2007; Kideghesho, 2008). For example, Holmern et al. (2007) reported that 708 livestock valued at USD 12,846 were killed by wild predators including lion, leopard and spotted hyena in seven villages adjacent to the Serengeti National Park in 2003.

The negative impacts of wildlife on human communities have been found to foster negative attitudes of

communities towards wildlife. These impacts need immediate attention as they may result in adverse impacts to both humans and wildlife (Madden, 2004; Distefano, 2005). It is this realisation that has prompted many studies in human–wildlife conflicts in different areas of Tanzania. These studies include Loibooki et al. (2002) and Kideghesho (2008) in areas surrounding the Serengeti National Park; Gillingham and Lee (2003), adjacent to the Selous Game Reserve, and Le Bel et al. (2011) in the villages adjacent to Tarangire National Park. However, most studies on HWC in Tanzania have focused on local community perspectives with few studies paying attention to wildlife damage. Therefore, the current study assesses the damage inflicted by wildlife.

This study assessed wildlife damages in the areas surrounding the Serengeti ecosystem through the use of both primary and secondary data from the Wildlife Division, Zonal Anti-Poaching Unit in Serengeti (APU-Bunda). Specifically, the study focused on identifying the wild animals involved in damage, the types of

damage inflicted by wildlife, the cost of the damages and the measures taken to control the wildlife damage in the study area.

METHODS

Study area

This study was conducted in villages surrounding the Serengeti ecosystem within the jurisdiction of APU-Bunda (Figure 1). This ecosystem is located in northern Tanzania covering over 30,000 km². The wildlife damage incidences occurred in villages adjacent to the Serengeti National Park and Ikorongo, Grumeti, Maswa and Kijereshi Game Reserves. The Anti-Poaching Unit jurisdiction area was selected because it is the only government entity in the area which has powers for wildlife law-enforcement inside and outside the protected areas. APU-Bunda, in conjunction with other stakeholders, is responsible for problem animals in all the villages within the Mara, Simiyu and Shinyanga regions where the western Serengeti National Park falls. From past studies, these areas experience a high degree

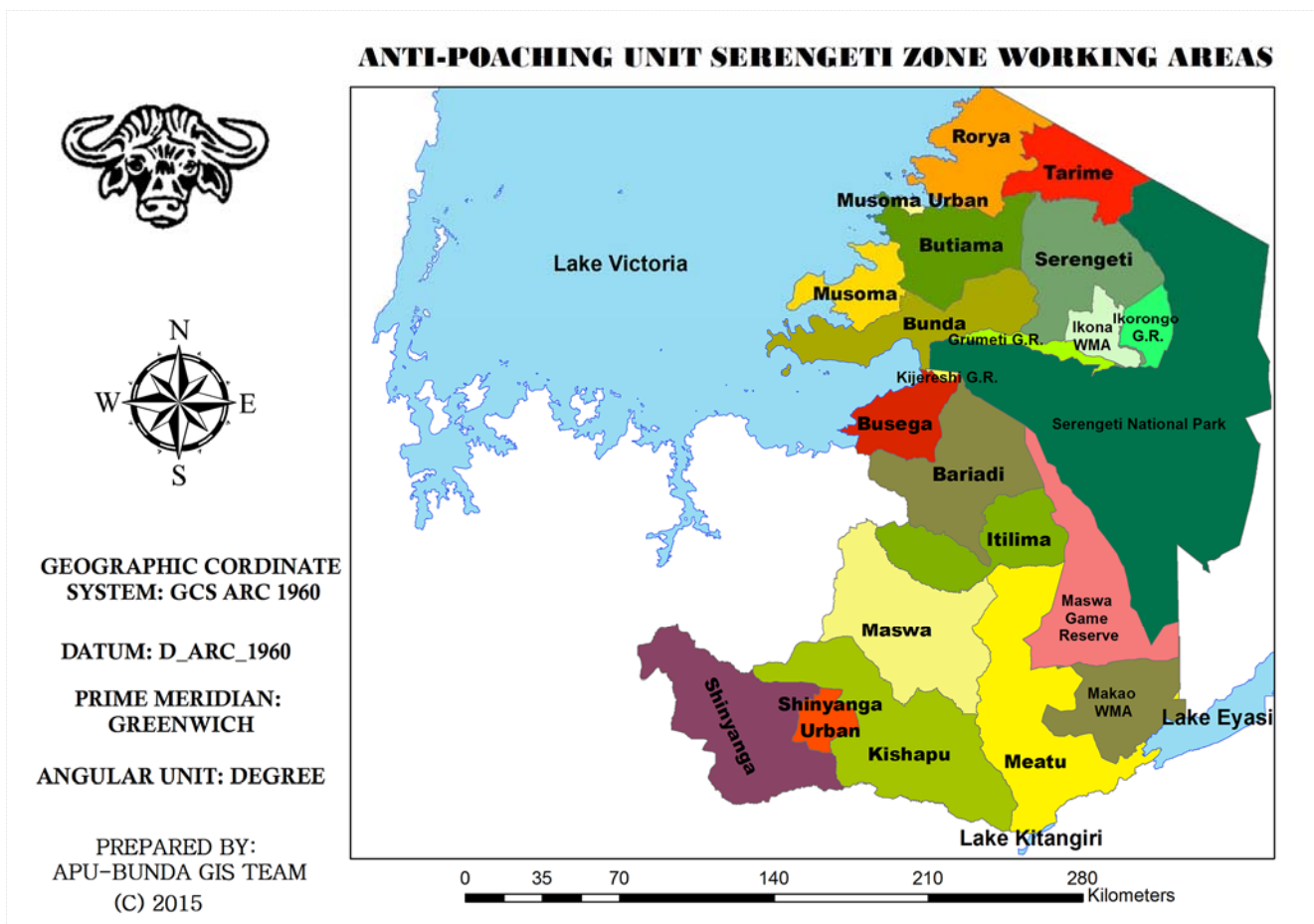


Figure 1: Map showing protected and non-protected areas under the jurisdiction of APU-Bunda (Source: APU-Bunda, 2016).



Local people, APU-Bunda and village leaders assessing a crop destroyed by Elephant for consolation payments © Alex Kisingo

of human–wildlife conflict (see Kideghesho, 2008). The human population in the Serengeti ecosystem is reported to have increased in recent years resulting in high pressure on natural resources (Estes et al., 2012). This has intensified human-wildlife conflict in the area (Estes et al., 2012).

Data collection

Data for this study were collected by analysing documents and conducting interviews. Document analysis involved the review of reports, letters and other information related to wildlife damages stored at the APU-Bunda office from the year 2010 to 2015. All information documented with regard to wildlife damages was reviewed by the researchers including but not limited to the villages affected, wild animal species involved, type of damage sustained, cost of damage (number of livestock killed, acres of crops destroyed, number of people injured, etc.), persons who acted to control the damage, control method applied, resources

used (number of game rangers, vehicles, firearms, etc.) and challenges encountered during problem animal control exercises. There was no clear method established before data collection to measure if the control methods were a success or failure.

Key informant interviews were conducted to obtain information on the challenges faced by game rangers in controlling problem animals. These were important for gathering information on challenges as they were less documented in the reviewed documents. Interviews were guided by pre-designed questions to provoke discussions. Key informants were drawn from APU-Bunda staff with long experience in problem animal control and from experienced people from villages that had recorded high incidences of wildlife damage. The selection of key informants was guided by the reviewed reports that contained the names of staff members involved in controlling human–wildlife conflict incidents. A total of 12 game wardens (50% of all APU-

Bunda staff in August 2015) were interviewed. In addition, key informants were selected from 30 villages with high incidences of wildlife damage. The interviews were conducted mostly with Village Chairpersons or Village Executive Officers to understand the magnitude of the costs inflicted by wildlife damage to their respective local communities. For the purpose of this research, problem animal refers to a wild animal which causes negative damaging impact to humans and/or properties.

Data analysis

The secondary data collected from the document review were carefully examined and assessed before being summarised and coded in a spreadsheet and used to calculate frequencies and percentages of wildlife damage incidences. Pearson Chi-square test (χ^2) was used to determine if there was a significant difference in the number of wild animals involved in wildlife damages and the types of wildlife damages that occurred across the years (2011–2014). The years 2010 and 2015 were excluded from the analysis as information was missing for some months. One sample t-test (t-test) was used to test for significant differences in acres lost across various crop types.

For estimating the monetary loss from wild animals, the formula employed by Pittiglio (2010) was applied. The cost incurred by the government was estimated by calculating the consolation fees which will be paid to local people who were affected by wildlife damage as per the Tanzanian Wildlife Conservation (Dangerous Animals Damage Consolation) Regulations of 2011. A 5 km distance from the protected area was observed in

estimating the consolation payment rate for crop damage, and for human injuries the rates for permanent disability as stipulated in the fourth schedule of the Tanzanian Wildlife Conservation (Dangerous Animals Damage Consolation) Regulations of 2011 were used. The qualitative information collected from the key informant interviews was summarised focusing on key issues.

RESULTS

A total of 168 wildlife damage incidents from 110 reports, letters and other documents stored in the KDU-Bunda Vermin Control file were identified and recorded

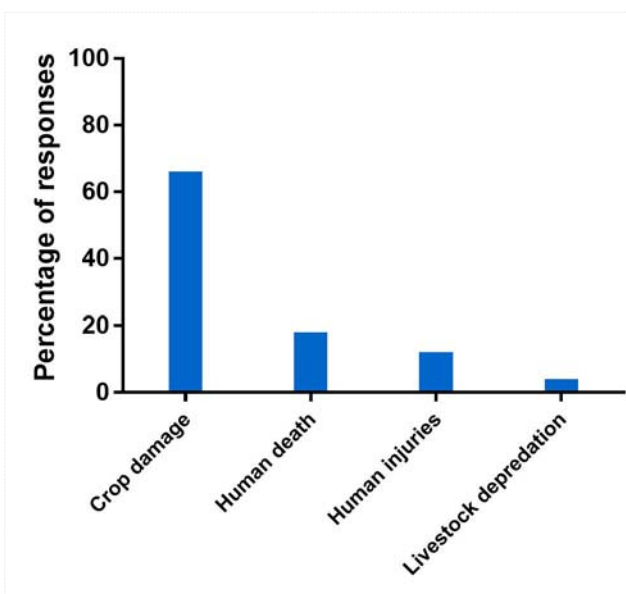


Figure 3: Wildlife damage identified between the years 2011 and 2014

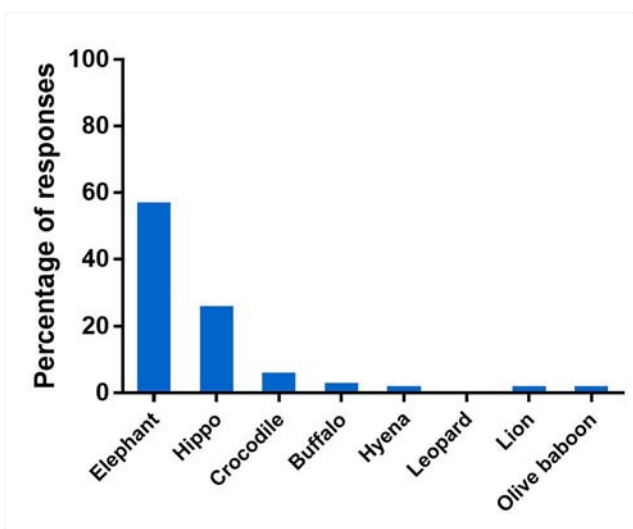


Figure 2: Wildlife species involved in wildlife damages between 2011 and 2014 (n=122).

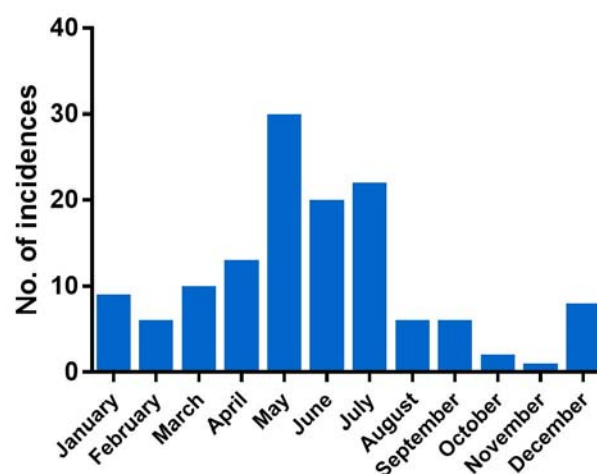


Figure 4: Number of wildlife damage incidences recorded per month from 2011 to 2014

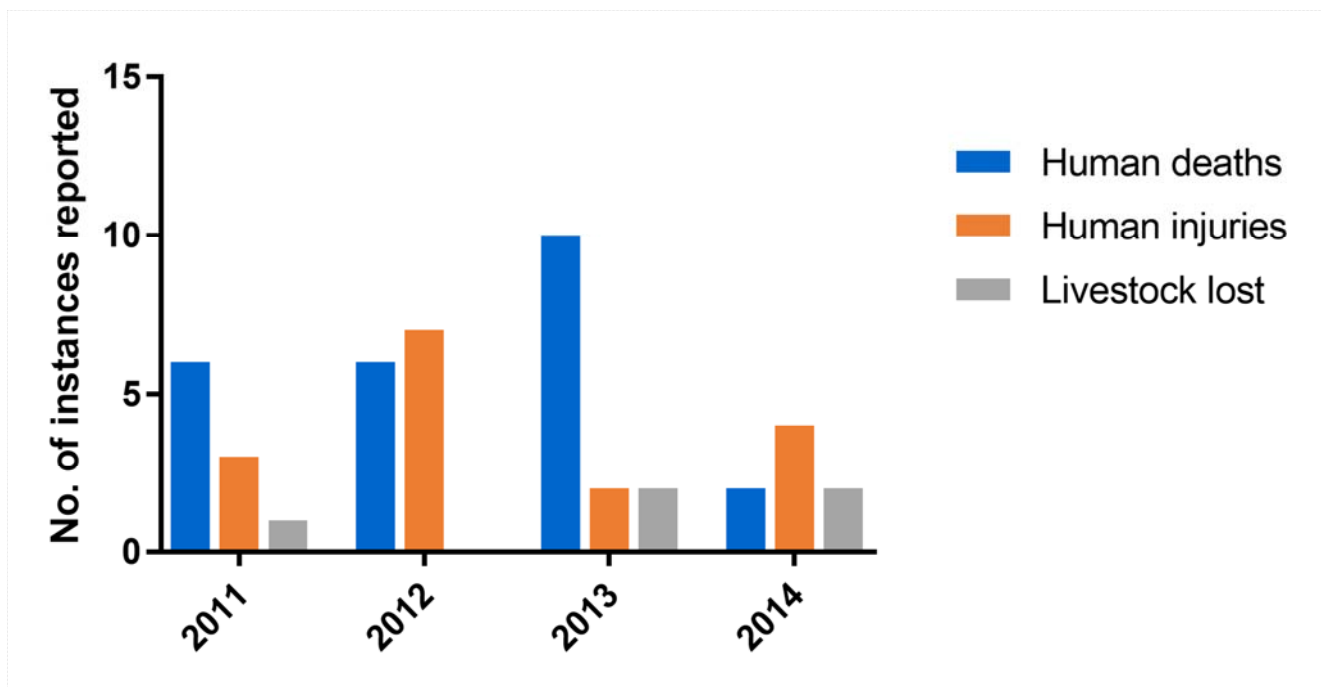


Figure 5: Wildlife damage incidences recorded between 2011 and 2014 in western Serengeti

from July 2010 to June 2015. Wildlife damage was recorded from 108 villages in 10 districts. Most incidents were reported from Bunda district (43.1%) followed by Busega (21.1%), Bariadi (17.9%), Rorya (5.0%), Butiama (4.1%), Musoma Rural (3.7%) and Tarime (2.3%), while fewer wildlife damage incidents were reported from Serengeti (0.9%), Musoma Urban (0.9%) and Itilima districts (0.9%). From these results, Mara region accounted for 60.1% and Simiyu 39.9% of all incidences reported. Most often game rangers used firearms and vehicles in controlling the problem animals by scaring and sometimes killing the animal involved. Most of the key informants suggested that inadequate resources such as personnel, equipment including vehicles, spotlights, scaring bullets and money were the major challenges encountered by game rangers when controlling problem animals.

Wild animal species involved in wildlife damages from 2011 to 2014

Eight species were involved in wildlife damage. Elephant (*Loxodonta africana*) was responsible for the highest number of incidences (57%) while the least frequent was leopard (*Panthera pardus*) which contributed to 1% of all damage recorded (Figure 2). The frequency of involvement in wildlife damage incidences from 2011 to 2014 differed significantly between wildlife species ($\chi^2_{221,122} = 44.059$, $p = 0.0023$).

Types of damage caused by wildlife

Crop destruction occurred more frequently than other types of wildlife damage (66%) identified and recorded in the four years (2011–2014), followed by human deaths (18%) and human injuries (12%), while livestock killing was the least frequent damage recorded (4%) (Figure 3). The difference in these damage types across the four years (2011–2014) was statistically significant ($\chi^2_{29, 131} = 19.332$, $p = 0.023$).

Over the four years (2011 to 2014), wildlife damage incidences differed between months; increasing in March and peaking in May, while fewer incidences were recorded from August to February (Figure 4). This extent of damage differed significantly across months of the year ($\chi^2_{233,133} = 69.04$, $p < 0.01$).

Cost of the damage caused by wildlife from 2011 to 2014

The extent and cost of damage caused by wildlife across Bunda, Serengeti, Musoma Urban, Musoma Rural, Tarime, Rorya, Butiama, Bariadi, Busega and Itilima districts between 2011 and 2014 were determined (Figure 5 and Table 1). Under the Wildlife Conservation (Dangerous Animal Damage Consolation) Regulations of 2011, the amounts that the Tanzanian government should pay in consolation are human deaths 24 million Tanzanian shillings (TZS) (\approx USD 12,000), human injuries 8 million TZS (\approx USD 4,000), and loss of

Table 1: Crop damage costs estimated in acres from 10 districts recorded by APU-Bunda between 2011 and 2014

Crop	Hectares	Yield* (tonnes/ha)	Yield Lost (tonnes/ha)	Mean Price** (TZS/tonne)	Monetary Loss	
	Lost				TZS	USD1
Maize	152.87	1.33	203.32	500,000	101,658,550	50,829.3
Sorghum	116.04	0.97	112.56	650,000	73,163,220	36,581.6
Mixed crops	104.46	-	-	-	-	-
Cotton	108.15	0.82	88.68	-	-	-
Tomatoes	9.15	12.41	113.56	1,550,000	176,004,825	88,002.4
Paddy	8.70	1.59	13.83	1,050,000	14,524,650	7,262.3
Sugarcane	5.77	-	-	-	-	-
Cassava	5.58	1.85	10.32	-	-	-
Sweet potato	3.74	2.04	7.63	-	-	-
Cabbage	3.64	8.08	29.41	-	-	-
Beans	0.81	0.76	0.62	1,550,000	954,180	477.1
Finger Millet	0.81	0.77	0.62	1,350,000	841,995	421.0
Watermelon	0.81	5.67	4.59	-	-	-
Banana	0.40	-	-	-	-	-
Sisal	0.40	-	-	-	-	-
Cucumber	0.24	3.36	0.81	-	-	-
TOTAL	521.57		585.95		367,147,420	183,573.7

Sources: *CountrySTAT United Republic of Tanzania (URT) (2015); **Dullonet Tanzania (2015); - No clear data found; 11 USD ≈ 2,000 TZS

livestock (cattle) TZS 250,000 (≈ USD 125). Human deaths and injuries were reported from crocodile, hyena, hippo and elephant.

A total of 16 crop types were identified as being farmed in the area, out of which only 12 had reliable yield rates recorded for Tanzania (Table 1). Analysis of the losses from these 12 crops found that a total of 1,298.75 acres (521.57 ha) were lost costing TZS 367,147,420 (USD 183,573.7). Under the Tanzanian Wildlife Conservation (Dangerous Animals Damage Consolation) Regulations of 2011, the government should pay about TZS 5,860,000 in consolation for these damaged crop acreages. Maize crops (377.75 acres ≈ 152.87 ha) were the most commonly destroyed costing TZS 101,658,550 (USD 50,829.3). High economic losses were sustained from tomatoes with 22.6 acres lost (9.15 ha) costing TZS 176,004,825 (USD 88,002.4). Cucumbers sustained the least damage from wild animals (0.6 acres ≈ 0.24 ha) with 0.81 tonnes/ha, however the economic

loss was not quantified due to lack of information. The area lost over the four years differed significantly across crops ($t_{15} = 2.446$, $p = 0.027$).

Four major costs to the local community associated with wildlife damage were indicated in key informant interviews with local government leaders (Figure 6).

Measures taken to control problem animals and the challenges faced

The work of controlling problem animals was primarily undertaken by game wardens (76.7%) with local community members carrying out the remaining work (23.3%). Game wardens scared (46.5%) and killed (30.2%) the problem animals with guns while local people used traditional methods like noise making when guarding their crops and properties (Figure 7). Mostly, the control of problem animals was carried out during the hours of darkness (evening, night and early morning). According to the key informant interviews, inadequate resources (human, material and financial)

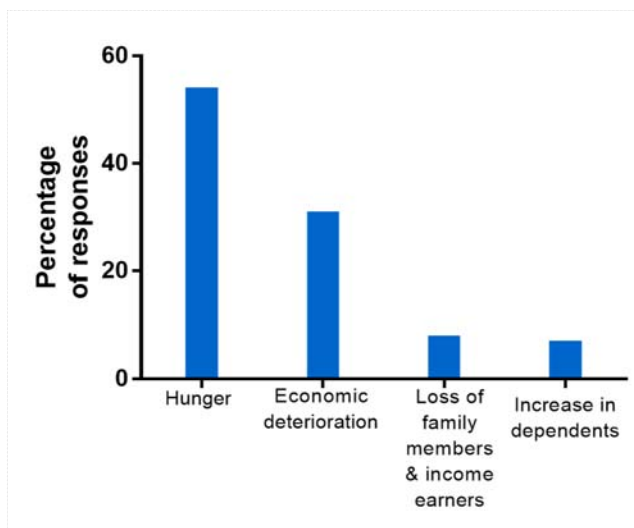


Figure 6. Costs associated with wildlife damage to the local community

were among the challenges faced by game wardens during the process of controlling problem animals, while political interference with some local leaders making false elephant presence calls, large areas to cover and inadequate collaboration of protected area staff with the nearby villages were other challenges encountered when controlling problem animals (Box 1).

No pro-active conflict prevention techniques such as the use of chili ropes or bricks, beehive fencing, lion lights and other similar techniques were identified during the survey.

Box 1. Challenges encountered by game rangers during control of problem animals

Resource scarcity: insufficient funds, personnel, vehicles, lack of spotlights and barriers to accomplish problem animal control tasks.

Political interference: Local government leaders give false information to game rangers in order to show their voters that they work very hard.

Coverage: APU-Bunda covers three regions (Mara, Shinyanga and Simiyu) with more than 10 districts, therefore this is a large area compared to the resources available of only 24 members of staff with only two field vehicles.

Collaboration: collaboration from the protected area staff is not sufficient because most of the incidences occur near to the protected area boundaries. Game rangers appreciate the collaboration they receive from District Game Officers (DGO) and local communities.

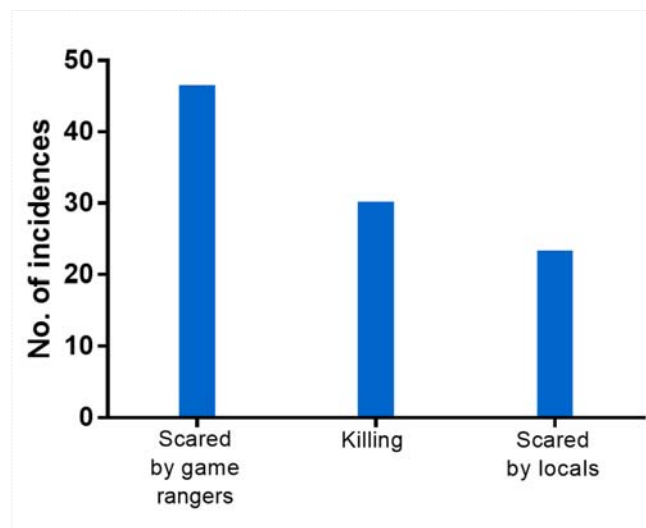


Figure 7. Measures taken to control problem animals by both game rangers and locals

DISCUSSION

Wildlife species responsible for wildlife damage

The high frequency of damage by African elephant might be attributable to increases in both human activities around protected areas and/or increases in the elephant population. For example, the human population in Bunda and Serengeti districts is reported to have increased from 258,930 in 2002 to 335,051 in 2012 and 176,057 in 2002 to 249,420 in 2012 respectively (Brinkhoff, 2017). This increase in human population is linked to increased anthropogenic activities close to protected areas and thus more likelihood of wild animals coming into contact with human beings and their properties. This phenomenon was explained by Estes et al. (2012), who found a conversion rate to agriculture of 1.6% to 2% for land area close to protected areas in western Serengeti. With regard to increased wildlife populations, there are reports of an increase in the number of elephants in the Serengeti ecosystem by 0.78% to 3,680 in the year 2009, the highest population recorded in the past 23 years (TAWIRI, 2010). Reports for 2014 indicate a total of 7,535 elephants in the Serengeti-Mara ecosystem with 6,087 elephants in the southern area (Tanzanian protected areas) (Mduma et al., 2014). This increase in the number of elephants in protected areas might be associated with an increase in frequency of damage in nearby villages. Elephants are known to have a tendency of moving out of protected areas in search of food and water (Malugu et al., 2011).

Similar accounts of elephants as problem animals have been reported in other parts of Tanzania. In villages surrounding Arusha National Park and in Rombo district bordering Kilimanjaro National Park, elephants

were reported as the most destructive wild animal (Kideghesho, 2008). Likewise, in villages adjacent to Selous Game Reserve, African elephant was ranked as the most frequently reported problem animal (Newmark et al., 1994). That Leopard was less commonly reported as responsible for wildlife damage this might be due to their shy behaviour (hence difficult to spot the animal) or factors such as night enclosure of livestock, guardian dogs or other pro-active livestock protection measures. In the Serengeti ecosystem, leopards are difficult to find due to their elusive behaviour (TAWIRI, 2009).

Types of damages caused by wildlife

The high incidences of crop damage relative to other types of damage might be attributable to the proximity of farms to protected area boundaries and increase in human population as most Tanzanians depend on farming for food and income. Crop damage incidences are highly influenced by the distance between farms and the boundaries of protected areas (Newmark et al., 1994; Naughton-Treves, 1998; Holmern et al., 2007; Malugu et al., 2011). People living close to protected areas experience more losses from wildlife with up to 90% of damage from crop raiding (Naughton-Treves, 1998; Kideghesho, 2008). Fewer incidences of livestock killings observed in the area could be the result of the extra protection accorded to livestock. Most livestock are kept in well fenced enclosures and others guard them with local weapons (Mwakatobe et al., 2013).

Temporal pattern of wildlife damages distribution accelerated from March, peaked in May, and started to drop from August with less incidences recorded in October and November. This pattern corresponds to observations that damages correlate with the availability of mature crops which are palatable to wild animals, as advanced by Pittiglio (2010) and Malugu et al. (2011).

Cost of the damages caused by wildlife

Human injuries and deaths from wildlife are not a new issue in Tanzania (Kideghesho, 2008). In this study, human deaths occurred more frequently than human injuries. Human injuries and deaths inflict not only a heavy human and financial cost to families, many losing their main income earner, but also to the community and government through loss of productive workers. Killing of livestock by wildlife was rarely encountered in the four-year period with only 5 livestock losses reported, principally caused by lion, crocodile and leopard. Most of the livestock attacked were cattle being the predominant livestock species kept by communities surrounding the Serengeti ecosystem.



Maize destroyed by elephants © Alex Kisingo

Maize was the most commonly destroyed crop while high economic loss was sustained from damage to tomatoes. The high monetary loss from tomatoes as compared to other crops was attributed to its higher yields and higher market prices. Sorghum was another frequently destroyed crop. These results correspond to those by Malugu et al. (2011) on types of crops damaged by elephants from 2006 to 2008 in villages surrounding the Ikorongo and Grumeti Game Reserves. According to Kideghesho (2008), maize and sorghum are widely grown and are staple crops for communities in the western Serengeti ecosystem.

The costs borne by the Tanzanian government in paying consolation for human deaths (TZS 24 million), human injuries (TZS 8 million), crop damage (TZS 5,860,000) and livestock (cattle) losses (TZS 250,000) are also worth noting. Even with these payments, the local community complained that the rates for consolation were very low.

Measures taken and challenges in controlling problem animals

Nearly a quarter of the measures taken to control problem animals were carried out by local communities themselves, mostly farmers guarding their farms at night. While scaring was the major method used by game wardens to control problem animals, killing was used when the animal became more dangerous, and was considered a lethal risk to humans.

The game wardens from APU-Bunda, identified a number of challenges in their work. Insufficient resources including lack of personnel and vehicles to cover more than 10 districts over 3 regions was the



Elephants in Serengeti National Park © Marc Hockings

biggest challenge. Lack of equipment such as spotlights was also mentioned as much of the work was carried out in the hours of darkness. Political interference was another challenge encountered by game wardens where some local government leaders called the game wardens even if there was no problem wild animal in their village, in order to show their voters how active they were, but they were not held accountable for wasting resources. Collaboration between protected area staff and other stakeholders is essential in controlling wildlife damages (Curtis et al., 2005). However, it was noted from this study that game wardens from APU-Bunda were hampered by inadequate collaboration with other protected area staff near to the wildlife damage incidences mainly due to inadequate coordination between them.

Human–wildlife conflict management

Currently, APU-Bunda in collaboration with the Grumeti Fund has stationed a human–wildlife conflict

mitigation unit at Hunyari village, Bunda district, adjacent to Ikorongo-Grumeti Game Reserves in order to respond quickly to wildlife damage calls. Also, conservation authorities in collaboration with other stakeholders are providing conservation education to the local people living adjacent to protected areas. The education programme focuses on many issues, including the need to avoid cultivation in the proximity of protected area boundaries, the use of bee fences, cultivating unpalatable crops to elephant such as chili around their farms and other mitigation approaches. There have been trials on the use of drones to deter elephants in western Serengeti (Hahn et al., 2017), but, even though they have been effective, the cost of the project is not sustainable as farmers cannot afford to buy them. Furthermore, land use plans are not successfully implemented in the area. Even though the Wildlife Conservation Act prohibits human activities within 500 m of protected area boundaries, this requirement is not enforced and villagers still cultivate

crops within this zone. This also explains some complaints about the lack of compensation for wildlife damage to some communities as the law only allows payment of consolation for crop damage when it occurs at least 500 m from the protected area boundary (United Republic of Tanzania (URT), 2011). Meanwhile, although conservation stakeholders such as TAWA and TANAPA implement benefit sharing projects, more is needed so as to increase the local people's tolerance of wildlife damage. There is no single approach that can be fully effective in mitigating human–wildlife conflicts, and that there is a need to involve multi-stakeholders from conservation, local communities, land use planners, the agricultural sector, policy makers, law enforcement organs and many more to develop and implement holistic solutions to the human–wildlife conflict problem.

CONCLUSION

Wildlife damage in areas surrounding the Serengeti ecosystem is mostly caused by elephants to crops, while lions cause damage to livestock. High costs were sustained from crop damage with many acres lost for maize and sorghum while tomatoes led to higher monetary loss due to their high yields and higher market prices. Insufficient resources, political interference, inadequate collaboration with protected area staff and larger areas to cover by problem animal control staff were identified as drawbacks to problem animal control activities. Pro-active prevention of conflict using night enclosures, lion lights and growing unpalatable crops could also minimise human–wildlife conflicts. To minimise the problem of wildlife damage requires an approach where stakeholders are involved from the planning to execution phases of conservation projects. Furthermore, conservation management authorities such as the Tanzania Wildlife Management Authority, Tanzania National Parks, Ngorongoro Conservation Area Authority and Wildlife Division should improve the availability of resources to game wardens and rangers for efficient control of problem animals. Participatory land use planning and conservation education for the local community are necessary to reduce the proximity of people to protected area boundaries, thus minimising interactions between wildlife and local communities. This should be done in accordance with the Tanzania National Land Use Policy of 1997 which directs local governments to allocate land for farming, livestock grazing, settlements and conservation.

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RESUMEN

Los conflictos hombre-vida silvestre son uno de los mayores desafíos que enfrenta la conservación en Tanzania y en todo el mundo. En este estudio, se examinó el conflicto entre el hombre y la vida silvestre a través de la evaluación de los daños a la vida silvestre en las aldeas que rodean el ecosistema del Serengeti. Los datos se obtuvieron mediante el análisis de informes disponibles en la Unidad de la Zona contra la caza furtiva del Serengeti y entrevistas con informantes clave. Se revisó un total de 110 informes. La mayoría de los daños se debió a la destrucción de cultivos (66 por ciento), mientras que la depredación de ganado provocó menos daños (4 por ciento). Los elefantes (*Loxodonta africana*) fueron responsables de la mayoría de los daños (57,4 por ciento) que ocurrieron entre 2011 y 2014 con pocos daños (0,8 por ciento) causados por leopardos (*Panthera pardus*). Los cultivos más frecuentemente destruidos por los animales salvajes fueron el maíz (*Zea mays*) y el sorgo (*Sorghum vulgare*) con 153 hectáreas y 116 hectáreas destruidas, respectivamente, durante el período del estudio. La producción de tomates (*Lycopersicon esculentum*) sufrió cuantiosas pérdidas monetarias potenciales: TZS 176.004.825 (alrededor de USD 88.002), lo cual se atribuyó a sus elevados rendimientos (12,41 toneladas/ha) y a los altos precios de mercado (1550 TZS/kg). Los funcionarios de vida silvestre utilizaron varios métodos para controlar los animales problemáticos, incluyendo la práctica de asustar y matar. La escasez de recursos fue identificada como un problema muy importante para el control de animales problemáticos. Otros problemas fueron la interferencia política y la colaboración insuficiente entre el personal de las agencias de conservación de vida silvestre.

RÉSUMÉ

Le conflit entre l'homme et la faune est l'un des plus grands défis auxquels fait face la conservation en Tanzanie et à travers le monde. Dans cette étude, le conflit homme-faune a été examiné à travers l'évaluation des dommages causés par la faune dans les villages entourant l'écosystème du Serengeti. Les données ont été obtenues grâce à l'analyse des rapports mis à disposition par l'Unité Anti-Braconnage du Serengeti et à des entretiens directs avec des témoins clés. Au total, 110 rapports ont été examinés. La plupart des dommages proviennent de la destruction des récoltes (66%), tandis que les dommages causés par la prédation du bétail sont moindres (4%). Les éléphants (*Loxodonta africana*) sont responsables de la plupart des dommages (57,4%) survenus entre 2011 et 2014, avec une part infiniment plus petite (0,8%) causée par les léopards (*Panthera pardus*). Les récoltes les plus fréquemment détruites par les animaux sauvages sont le maïs (*Zea mays*) et le sorgho (*Sorghum vulgare*) avec 153 hectares et 116 hectares détruits respectivement au cours de la période d'étude. Des pertes monétaires considérables sont causées par le pillage des tomates (*Lycopersicon esculentum*), TZS 176 004 825 (environ 88 002,4 USD), dont la culture est associée à des rendements élevés (12,41 tonnes/ha) et à des prix de marché élevés (1 550 TZS/kg). Les agents de la faune ont utilisé plusieurs méthodes pour contrôler les animaux à problèmes, de l'effarouchement à la mise à mort. Le manque de ressources adéquates reste le défi majeur pour le contrôle des animaux à problèmes. D'autres défis identifiés sont notamment l'ingérence politique et une collaboration insuffisante entre le personnel des agences de conservation de la faune.