

Guava Forests and Other Wild Fruits: A Panacea to Human-Wildlife Conflict, Deforestation and Climate Change in Zimbabwe's Rusape - Matsika Area

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Abstract: The objective of the study was to examine and explain the role of wild Guava tree in the periphery of cultivated communal land of Matsika area of Rusape, Zimbabwe in protecting crops and preserving forests. Interviews and field observations were employed as data gathering tools. Secondary data from literature and other records were also consulted. Findings revealed that local people preserve trees on the periphery of their fields to ensure that the Guava fruits and other wild fruit trees provide food to wild animals that destroy their crops. This forms a sustainable forest management system and an almost absolute solution to the human wildlife conflict as well as deforestation. During the rain season when baboons and monkeys are caught between the crops in the fields and the buffer of the guavas forest at the periphery of the fields, the crops are protected. The only available solution to ensuring a good harvest by farmers is by ensuring that the guava and other fruit trees are not cut or burnt as these provide the much-needed food for baboons, monkeys as well as villagers. This dual solution to deforestation and human wildlife conflict cannot be underestimated. For the good of their crops villagers go a long way in ensuring that every fruit tree around their arable land is protected and should not for any reason be cut or burnt. This in a nutshell has contributed significantly to the restoration of forest and adaptation to climate change. Forests are critical to the survival of humanity and the regulation of climate. It is therefore recommended that there be public private partnership (PPP) in preserving forests. That environmental and forest management institution educate the public on the use of alternative sources of energy and spare forest at all societal levels.

Key Words: Guavas, Forests, Wildfruits, Panacea, Human, Wildlife, Conflict, Deforestation, Climate, Change, Zimbabwe, Rusape, Matsika

I. INTRODUCTION

The ever-increasing population, unemployment and the demand for food has seen continuous deforestation in most rural areas of Zimbabwe as people expand their arable land to enhance food security as enshrined by goal number 2 of the sustainable development goals for society. The objective of this study was to examine and explain the role of wild guava trees (*Psidium guajava*) in the periphery of cultivated communal lands of Matsika area of Rusape, Zimbabwe in protecting crops and preserving forests as well as identifying the role played by local guava forests in reducing human wildlife conflict and protecting of crops from baboons and their role in combating deforestation thus,

ensuring that goals number 13 and 15 on climate change and deforestation respectively, are sustained.

Thirty (30) % of the earth's surface is covered by forests and these are home to 80% of the world's terrestrial biodiversity and 1.6 billion people survive on forest and most of them are from the developing countries (FAO 2021). This means that forests are major players to the survival of humanity and if well managed they can help remove excess carbon from the atmosphere. This helps with resolving the climate change effects. Given the importance of forests in the carbon pool, there is need to preserve and plant trees and not only guava trees to create carbon sinks but also to protect existing forests and help reduce emission thus, ensuring Sustainable Forest Management (SFM) (Kupcak 2011). This accordingly has stimulated the zeal to look at SFM as a dynamic and evolving concept aiming to maintain and enhance the economic social and environmental values of all types of forest for the benefit of present and future generations (Seppala *et al.*, 2009). The role of forests has been looked at in the context of Human wildlife Conflict (HWC) as a negative on both humans and wildlife and as a reciprocal process (Mekonen 2020), the two needs co-existence is a dynamic but sustainable state in which humans and wildlife co-adapt to living in shared landscape with the Matsika rural community of Rusape in Zimbabwe as the laboratory. In this community wild guava fruits are providing food to both humans and wild animals such as baboons, monkeys and other insects. This has resolved a conflict where locals fight baboons from their fields to avoid crop destruction.

Human-wildlife conflict is a struggle that emerge when the presence or behaviour of wildlife poses actual or perceived direct and recurring threat to human interests or needs, leading to disagreements between groups of people and negative impacts on people and or wildlife Food and Agricultural Organization of the United Nations (FAO 2011). Wild Guava trees in the periphery of cultivated communal land of Matsika communal area of Rusape, Zimbabwe are critical to local farmers in that the forest help control erosion by reducing wind velocity as they act as windbreaks. This does not only protect the soil from erosion but also the crops from serious winds that are capable of dislodging plants as well as wild animals mostly baboons and monkeys that feed on crops. Where human and wildlife interests intersect or overlap

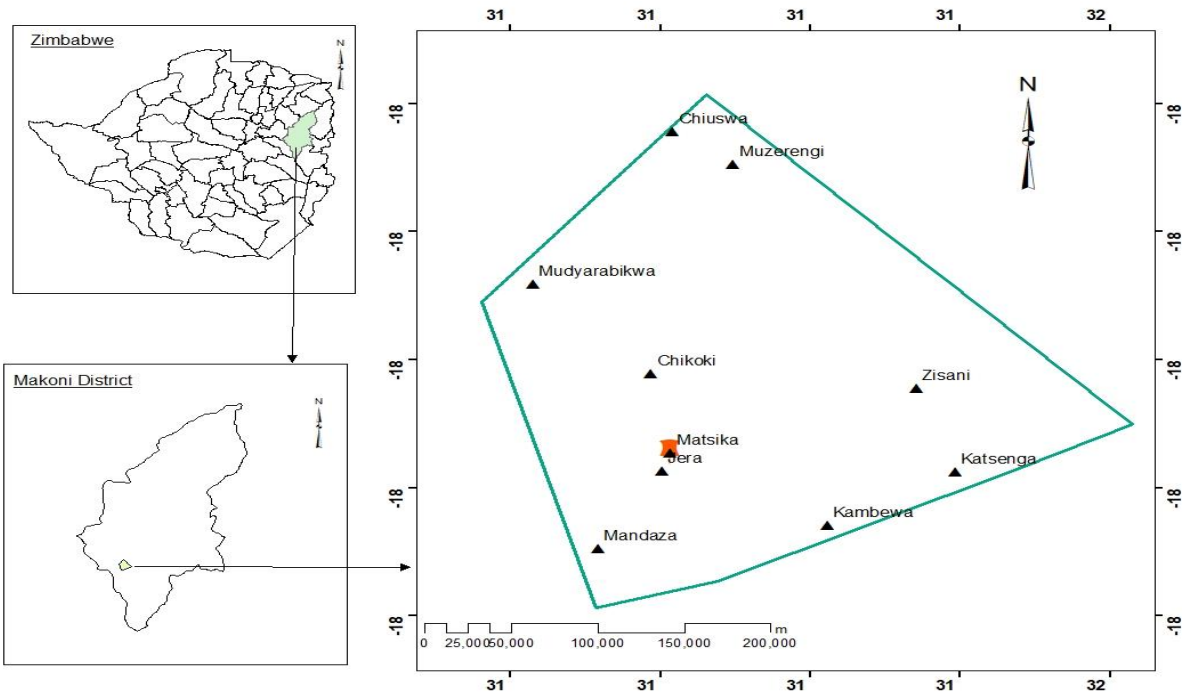
conflicts develop just as in this case baboons destroying crops and locals protecting their crops. The guava plants around the cultivated land are critical in the provision of fruits to baboons which are a threat to crops. These guava forest now act as a buffer between the fields and the mountains close by which are habitat to the baboons.

II. METHODOLOGY

Study Location

The study was conducted at the Matsika village of Rusape, Zimbabwe. The area is situated 33 kilometers from Rusape

town along the Wedza – Goto Road. The place is home to 15 different units of subsistence farmers. The farmers grow mostly maize (*Zea mays*) and ground nuts (*Arachis hypogaea*) on an area of over 8000 hectares of arable land. There are tracts of guava forest around cultivated land in the area intermingled with other wild fruits such as Maroro (*Annona senegalensis*), Matunduru (*Garcinia buchananii*), Tsubvu (*Vitez mombossae*), Matohwe (*Azanza garckeana*) and others. Noted in the area are also mountains such as Charamba, Dewedzo and Nyakupa mountains.



Rivers in the area include the popular Macheke, Mutorahuku, Mutombwe and Mvuranhema. The epicenter of the study was Matsika village although similar HWC also affect surrounding villages such as Mandaza, Kambewa, Chikoki, Zisani and Katsenga.

Data Collection

The study employed a dichotomy approach involving triangulation of primary and secondary data, quantitative and qualitative designs were adopted. Interviews and field observations were the main instruments used. Secondary data from the field of agriculture, forestry, and wildlife management was also a critical player in the data harvesting process for this study. The population was drawn from mainly Matsika village. The village heads and other leaders from the villages were consulted. A total of 15 local people were subjected to questioning and assisted in leading the researcher in observation process. The observation focused on damaged crops, the movement of baboons and monkeys, the guava and other wild fruits, local people in the fields and their interaction

with wild animals, wild animals feeding and other aspects of interest to the study. An in-depth qualitative analysis of the findings from interviews and field observation allowed inferences and conclusions to be made about the effectiveness of wild guava fruits in reducing crop damage from baboons, monkeys and wind. Since effectiveness is a string variable which cannot be quantified, personal observations were adequate to at least make a conclusion regarding the relationship between the villagers, wildlife and the forests.

III. RESULTS AND DISCUSSION

It was established that baboons and monkeys are the main wild animals that are destructive to field crops in the Matsika area of Rusape, Zimbabwe. Field observations showed that baboons and monkeys moved from the mountains in the direction of crop fields silently probably to ensure no farmer is alert of their presents. In some cases, they would stop and feed on guavas and never proceed to the crops in the fields. In some instances, baboons would try to go past the guava buffer to the field and it is only then that locals would intervene and

scare them away. The major objective was to ascertain the role that the guava forest play in protecting crops during the rainy season. This relationship is explained in the van diagram below wherein the ecosystem is composed of different players with different interest that in the end gives birth to proper management of human-wildlife conflicts and fortifies conservation efforts of the forests. The preservation of wild guava forest for them to act as a buffer zone to separate vulnerable crops from the baboons by acting as alternative food is explained in Figure 1 below.

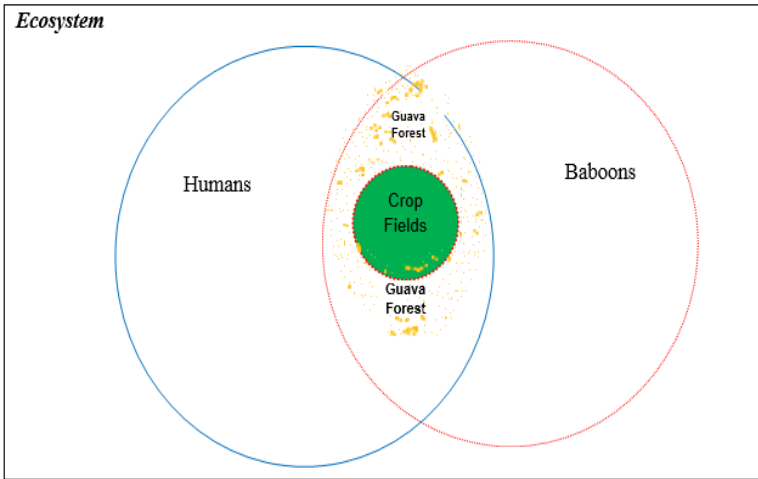


Figure 1. Van Diagram illustrating the Human, Wildlife and Forest Ecosystem

The baboons and monkeys feed only during the day thus, mainly morning and afternoon and do not visit the crop fields at night, thus the causes of the conflicts mainly destruction of crops and killing of other small livestock such as small goats, chickens, ducks and turkeys happens during the day. Figure 1 above shows baboons and humans has a common area of interest in the Matsika area of Rusape. The area is basically the wild fruits mostly guavas as well as maize fields. These two are an area of conflict and the conflict is reduced by the wild guava fruits that are acting as alternative food for the baboons. The management approaches to deal with human-wildlife conflict therefore should focus on behaviour modification on the part of human beings, habitat and ecosystem management which in this case may involve preservation of guava forest comingled with other wild fruits such as Maroro (*Annona senegalensis*), Matunduru (*Garcinia buchananii*), Tsubvu (*Vitez mombossae*), Matohwe (*Azanza garckeana*) as well as domestic fruits in the wild.

Locals were interviewed and gave their opinion as to the role played by the guava fruits and other wild fruits in ensuring that baboons are deterred from eating and destroying crops. Interviews with other experts also showed that forest ecosystems are a critical store of carbon and destruction of such has consequences to climate change, desertification and hunger.

Importance of Guava Forest.

A total of 15 individuals from the villages were interviewed to seek their opinion regarding the importance of the guava forest to the villagers and different opinions were forwarded. Seventy seven percent of the people noted that these forests help agricultural production and food security by providing alternative food for baboons and monkeys which are destructive to crops and small livestock. Some also indicated that the guava forest also provide fruits to the locals and income as some harvest and sell them at the local market. A responded from the group also indicated that baboons and people in some cases fight for wild guava fruits although people find the fruits more helpful in crop protection by providing food to the baboons and monkeys than to villagers. The alternative reasons for protecting the crops were given and presented in Figure 2 below. Other villagers had different opinions and about 9 % of the respondents indicated that the tress help act as wind barriers to their crops mostly during the rain seasons stimulated by cyclones.

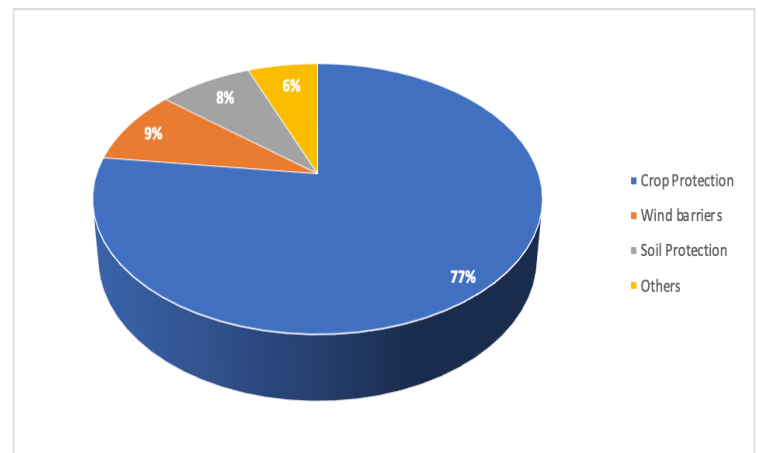


Figure 2 The role of Forest in the Matsika area of Rusape Zimbabwe

The majority of the responded indicated that the main role of the forests was to provide fruits for both the villagers and wild animals mostly baboons, birds, monkeys, and other small insects. In addition to the fruits, they also explained that baboons and monkeys are destructive to crops mainly maize and other small grains. This they said might contribute to hunger, but further explained that the guava fruits are very critical in reducing the crop destruction by baboons. The fruits provide optional food as the baboons and monkeys end up feeding on the guava fruits and other wild fruits in the periphery of their fields and avoid crops. This has resulted in the local villagers protecting the forest as they are aware that the forest provide food to wild animals and reduce their crop destruction. Villagers preserve trees as they attach this critical role of crop protection from the wild animals to the wild forest. On the other hand, they indicated that the forests act as wind barriers to the crop fields especially when its windy thus helping protect crops from heavy winds. They also help reduce soil erosion (8%) by both wind and rain drop splashing. Others however felt that the forest are a source of mosquitoes as some of the fruits rot and decompose during the

rainy season yet some of them are close to the homesteads. On the other hand, others felt that the forest are habitat to prey for their livestock and indicated that the baboons also kill small livestock such as kids and chickens. For this reason, they felt the need to clear the forest. Other consulted players indicated that guava forest can be evasive yet still acknowledge their major role in reducing desertification and climate change.

IV. CONCLUSION

Vegetation around cultivated land plays a critical role in enhancing productive agriculture as it reduces soil erosion, act as wind breaks and in cases of wild guava fruits as a food deterrent to animals such as monkeys and baboons from destroying crops.

Forests and ecosystems are subject to agriculture and logging causing negative direct impact on fauna and fragmenting habitats. This causes human wildlife conflict, deforestation and climate change. These compromise efforts to end hunger, achieve food security and improving nutrition and promoting agriculture (goal number 2).

There are human wildlife conflicts in the Matsika area of Rusape, Zimbabwe, however the wild guava forest mostly at the edges of cultivated land has been critical in ensuring the birth of some coexistence between wild animals mostly baboons, monkeys, and humans. This is so because during the rain season crop destruction by baboons is reduced as the buffer of the guava fruits intercept baboons from getting into the crops. The baboons end up feeding on the guavas. The critical role that these guava forest play has resulted in the local community preserving the forest and halting the killing of the baboons.

Communities in the Matsika area of Rusape, Zimbabwe are benefiting from the guava forest around them and this has

greatly contributed to poverty reduction as locals are successfully doing their subsistence farming with little crop destruction from the wild animals as the guava forest around their fields provide alternative food to the monkeys and baboons. This has resulted in locals jealously protecting the forests.

V. RECOMMENDATIONS

It is recommended that:

There be calls for public private partnership to orient communities towards forest preservation as this is critical in the achievement of sustainable goals numbers 1, 2 13 and 15. In fact non-governmental organization and other players should join hand with locals to educate and encourage the planting of more fruit trees and other trees around arable land in rural communities to reduce human-wildlife conflict and enhance forestry as well as better agricultural output. This will ultimately attend to climate change, unnecessary killing of wild animals and deforestation.

Locals be educated on the importance of forests considering climate change and possibilities of natural disasters such as floods and hunger.

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