

Farmers' Perceived Environmental Effects of Herdsmen Grazing Activities in Guma Local Government Area of Benue State, Nigeria.

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ABSTRACT

The study assessed the farmers' perceived environmental effects of herdsmen grazing activities in Guma Local Government Area of Benue State, Nigeria. A Multi-stage sampling procedure, purposive and simple random sampling techniques were used to sample the respondents. Structural questionnaire were used to collect primary data from 120 respondents. The data was analyzed using descriptive and inferential, statistics such as mean, frequency percent as well as Kruskal Wallis test of difference. It was evident from the result that land degradation in the area was perceived by majority of the farmers (90.00%) as the major effect of herdsmen grazing activities in the study area. Other effects such as destruction of crops (89.17%), depletion of soil nutrients (84.17%), distortion of food chain (84.17%), increase soil erosion (82.50%) and soil compaction (82.00%) were identified. The Kruskal Wallis test of difference was $p < 0.05$ indicating the significant effects of herdsmen grazing activities in the study area. The study concluded that, herdsmen grazing activities have great effects on the environment in the study area. It was recommended that livestock production be carried out in ranches against the open grazing practices to reduce damages on the environment, damaged environment be mended through reforestation; and other soil practices such as use of fertilizers, organic manure and soil tilling practices to reclaim the fertility of the damaged soil by herdsmen grazing activities.

Keywords: environment, grazing, assessment, reforestation, herdsmen

INTRODUCTION

Herdsmen are nomadic or semi-nomadic people whose primary occupation is raising of livestock. They are largely found in the Sahel and semi-arid parts of West Africa, though, due to relatively recent changes in

climate patterns, many of them have moved further south into the Savannah and tropical forest belt of West Africa. They are found in countries such as Nigeria, Niger, Senegal, Guinea, Mauritania, Mali, Burkina Faso, Ghana, Benin, Cote d'Ivoire and Cameroon (Iro, 1994). Transhumance pastoralist has been a long age practices in Nigeria. It involves the movement of headers with their herds from one location to the other in search of pastures and water. Pastoralists migration is as a result of unfavourable wealth conditions necessitated by climate changes resulting to indiscriminate, unregulated and uncultured grazing habits of the herders (Eneh, 2019).

The trends of environmental effects as a result of pastoralists' movement in Nigeria have posed a major threat to environment and crops yield in the country at large. Their grazing activities result to high level of environmental degradation such as depletion of the soil nutrients meant for effective crops yields, compaction of the soil, destruction of the flora species of the ecosystem which they browse on. On the other hand, their indiscriminate and unguided grazing activities not only destroy cash crops but create other attendant extreme environmental conditions such as deforestation, drought as a result of reduced eco-habitat flora which reduce rainfall for nation, degradation of soil structure and nutrients, water pollution, soil erosion and depletion of flora and fauna species resulting to incidence of climatic change (Eneh, 2019; Kubiab, 2019; and Ibrahim, 2020).

METHODOLOGY

The Study Area

The study was carried out in Guma Local Government Area (LGA) of Benue State Nigeria. Guma (LGA) of Benue State was created out of Makurdi Local Government of Benue State in May 1989. It lies within the Southern guinea savanna zone between *latitude* 7 ° 45' N and 7 ° 52' N and *longitude* 8 ° 35' E and 8 ° 4' E. The Local Government derives its name from River Guma, which traverses the Local Government from the Northwest and flows into Northern bank of River Benue with headquarter at Gbajimba. It is situated on the Northeastern part of Benue State with a landmass of 240,000 sq. km. It has an area of 2,882 sq km and a population of 191,599 at the 2006 census with postal code of the area is 970. (Benue State Agriculture and Rural Development Authority (BNARDA), (1995).

The climate of the area is characterized by both the wet and dry season. The wet season lasts for seven months, starts from April and ends in October. While the dry season begins in November and ends in March, the total rainfall ranges between 1,200mm to 1,500mm with a mean temperature of 30and 35.

Administratively, Guma (LGA) of Benue State is made up of ten council wards namely Abinsi, Kaambe, Mbabai, Mbagwen, Mbawa, Mbayev/Yandev, Nyiev, Nzorov, Saghev, and Uvir. It shares common boundaries with Tarka and Logo Local Government Areas in the East, Makurdi Local Government Area in the South while Doma Local Government Area of Nasarawa State lies in the West. Gbajimba town, headquarters of the Local Government Area has a strategic location as it is situated at the confluence of two big rivers of the State (River Benue and Katsina-Ala). The main occupation of the people of Guma Local Government is farming (NPC, 2006).

The Local Government is endowed with large expanse of fertile land both in the hinterland and along the valleys of rivers within the Local Government. The crops grown majorly in the study area include: yam; cassava; maize; millet; groundnuts; soybeans; guinea corn; white and yellow mellon (egusi). Special mention has to be made here that Guma Local Government produces more than three quarters of the total yellow (egusi) mellon produced in the country. The livestock raised in the local government area include pigs, cattle, goat and poultry (Unongo, 2016).

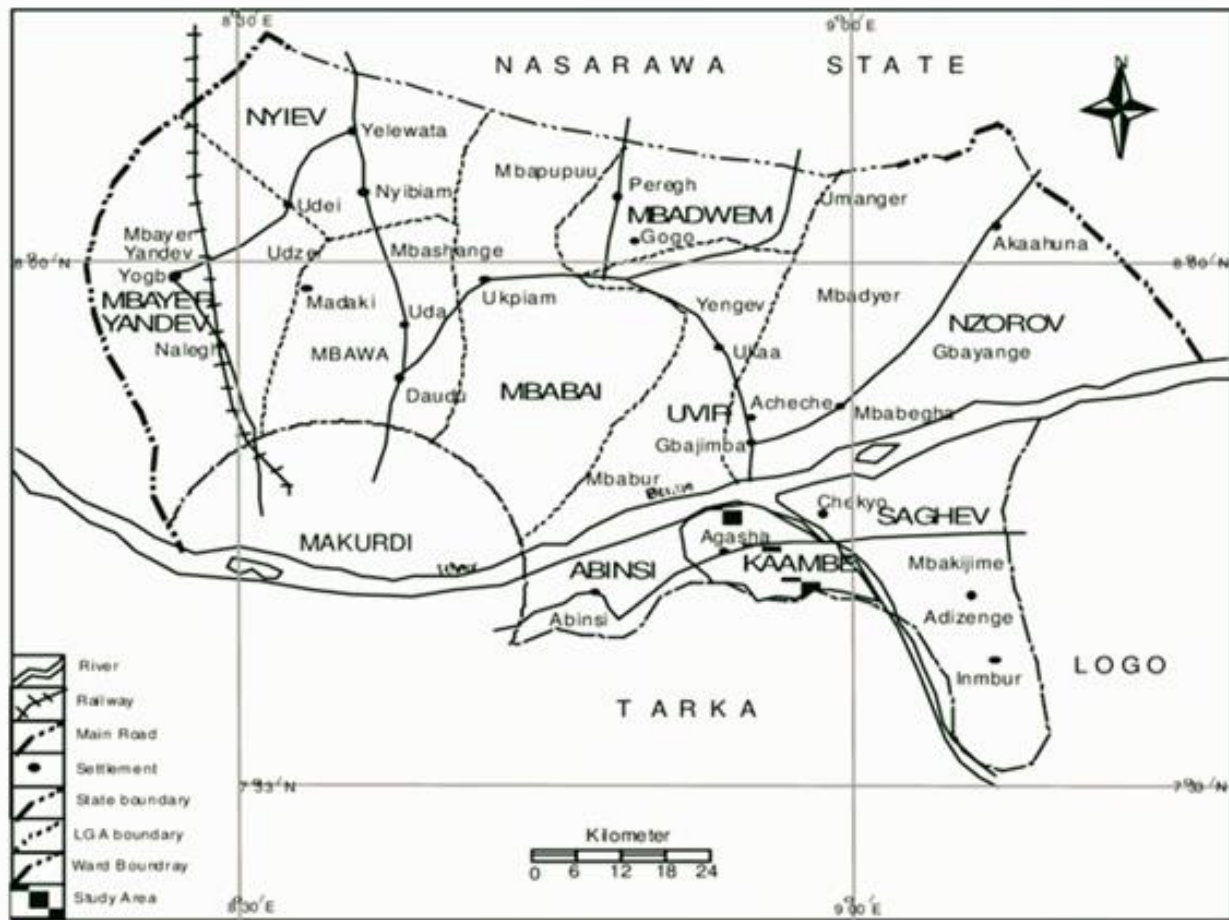


Fig.1: Map of Guma Local Government Area adapted from Benue State Ministry of Lands and Survey, as the study area.

The study was carried out in Guma Local Government area of Benue State, Nigeria. The target populations for the study were the crop farmers who are aware of effects of Herdsmen grazing activities.

A multi-stage sampling procedure was used for study area and respondents selection. During the first stage, five council wards were purposeful selected using purposive sampling procedure because of frequent herdsmen grazing activities in these council wards. During the second stage, one village was randomly selected from each of the five selected council wards to make five villages using simple random sampling technique. During the third stage, 120 respondents were selected from the 5 villages using a proportional allocation of 10% across board the population from the five villages drawn from farmer’s association list in the study area. Descriptive statistical tools such as frequency, percent, and inferential statistics such as Kruskalwallis were used to analyze data collected.

Table 1: Population sampling procedure

S/N	LGA	Council ward	Villages	Population	Sample
1	Guma	Mbasaan	Gogo	275	23
2	Guma	Uyiev	Nyiev	200	20
3	Guma	Mbaawa	Atawa	410	28
4	Guma	Mbagwen	Yogbo	320	27

5	Guma	Mbabai	Tse-tule	245	22
Total				1450	120

RESULTS AND DISCUSSION

Results shown in Table 2 reveal the various environmental hazards of herdsmen grazing activities as perceived by farmers in the study area. Majority (90.00%) indicated land degradation as one of the major effect caused to the environment as a result of herdsmen grazing activities in the study area thereby reducing the soil quality.

The percent distribution of the respondents in Table 2 reveal: destruction of farm crops, depletion of soil nutrients, distortion of food chain, increase soil erosion, soil compaction, reduced farm yields, destruction of ecosystem were found to be 89.17%, 84.17%, 84.17%, 82.50%, 82.00%, 81.67%, 80.83%, respectively. Others effects as shown in Table 2 were extinction of flora specie, extinction of fauna specie, increase in sunshine intensity and destruction of fauna habitat which were 80.00%, 74.17%, 72.50%, and 70.00%, respectively. This implies that the grazing activities of herdsmen pose great consequence to the environment in the study area which apart from degrading the quality of the land and natural ecosystem, could lead to low-farm yields (Nzeh, 2015; and Kwajaand Ademola-Adelehin, 2017).

Osemeobo (2006) and Morgenet *al.* (2013) similarly viewed that cattle grazing activities usually pose detrimental effects on environment thereby reducing its original soil fertility status to a non-suitable one for farmers.

Radkau (2010); Ruiz-perez (2010); Morgenet *al.* (2013); Mmom and Mbee (2013); and Arnold and Perez (2013) in their separate studies observed that herdsmen activities usually lead to inimical tendencies to the environment such as land degradation, destruction of farm crops, destruction of food chain, destruction of ecosystem, lead to increase in soil erosion and reduced crops yields. Other effects which they enumerated were: extinction of flora and fauna species, increase sunshine intensity, soil compaction. They emphasized that the ultimate result of such detrimental effects on the environment lead to drastic changes in biodiversity in a given ecosystem as well as reduced farm yields.

Table 2: Distribution of respondents according to identified environmental hazards of herdsmen grazing activities (N=120)

Environmental Hazards	Famers' perception on effects of grazing activities			
	Effects Response			
	Freq	%	Freq	%
Land degradation	108	90	12	10
Depletion of soil nutrient	101	84.17	19	15.83
Extinction of fauna species	89	74.17	31	25.83
Extinction of flora species	96	80	24	20
Soil compaction	99	82	21	17.5
Destruction of fauna habitat	84	70	36	30
Reduced farm yield	98	81.67	22	18.33
Increase sunshine intensity	87	72.5	33	27.5
Increase soil erosion	99	82.5	21	17.5
Destruction of ecosystem	97	80.83	23	19.17
Distortion of food chain	101	84.17	19	15.83

Destruction of farm crops	107	89.17	13	10.83
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*Multiple response

Difference in the Perceived Effects of Herdsmen Grazing Activities in the Study Area

It is evident that the hypothesis on effects of grazing activities of herdsmen on the environment indicate level of significance at $p < 0.05$ with chi-square value of 15.872. The effects were felt in all the council wards but at varying intensity. This could be as a result of the number of herdsmen in the various wards, the more the number, the more the effects and vice versa. Godoy and Bawa (2011) stressed that the pressure by human activities such as grazing, farm activities, construction activities and other detrimental means of human surviving activities carried out for livelihood cause damage to the environment.

Table 3: Test of hypothesis on the significances on farmers' perceived effects of grazing activities across the selected council wards (n=120)

WARD	Observation	Rank Sum	Rank
Mbaawa	24	1085.50	1
Mbasaan	24	1341.00	2
Mbagwen	24	1376.50	3
Mbabai	24	1449.50	4
Uyiev	24	2007.50	5

Chi-squared = 15.872

$P < 0.05$

CONCLUSION AND RECOMMENDATION

The study concluded that farmers perceived great effects of herdsmen grazing activities on the environment in the study area at varying intensity. It was therefore recommended that: livestock production can be carried out under intensive system and not extensive system as it is obtainable in the study area; damaged environment as a result of herdsmen grazing activities may be reclaimed by reforestation; and other soil management practices such as use of fertilizers, organic manure, mulching, good soil tilling and use of appropriate agronomic practices such as good farming systems.

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