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ASSESSMENT OF THE INFLUENCE OF HUMAN ACTIVITIES ON BIODIVERSITY CONSERVAION: A CASE STUDY OF GASHAKA GUMTI NATIONAL PARK, GASHAKA LOCAL GOVERNMENT, TARABA STATE, NIGERIN

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ABSTRACT

The study was carried out to determine the influence of human activities on biodiversity conservation in Mayo Selbe range of Gashaka Gumti National Park, Gashaka Local Government Area. Both Quantitative and qualitative methods of data collection were used. Data was collected through the use of closed ended questionnaires, Additionally, the study also employed the use of descriptive statistics such as frequencies, percentage, mean and standard deviation distribution tables to present the data. The sample size of the study was 133 obtained from the target population of 200 respondents from the study areas. The study found out that males were the most individuals involved in various human activities on the environment with 74%. The most human activities on the environment that affect biodiversity are illegal hunting which had the responses rate of 86 respondents representing (89.6%), illegal logging 75 (78.1%), follows by over population and poverty 72 (75%), livestock ranching and over grazing 71 (73.9%), bush burning 69 (71.9%), agricultural activities with 68 respondents (70.8%), biodiversity loss 68 (70.8%), pollution 56 (58.3%), soil erosion 66 (68.7%), over poaching, 60 (62.5%). The finding also revealed that reduction of fauna and flora species were the major effects of human activities on biodiversity which had 62 respondents representing (64.6%), follows by reduction in revenue generation 56 (58.4%), reduction in management practices 55 (56.3%), wildlife extinction and habitat loss 54 (54.4%), degradation of the environment 39 (40.6), global warming and climate change 26 (27.1%). This indicated that biodiversity loss is experienced in the study area due to the various human activities on the environment. According to community the responses of the local communities, shows that stopping deforestation and increase afforestation, education and awareness is the possible control measure in managing the effects of human activities on biodiversity was agreed by 80 respondents (83.3%) and 74 respondents representing (78.1%), follows by protection of species and habitat 70 (72.9%), stop over-exploitation of resources 85 (88.5%), prevention of over-hunting and over-fishing 71 (74%), government restricting policies 62 (64.6%), prevention of pollution 70 (72.9%). Unsurprisingly, the finding also revealed that the wildlife management is major issues facing the study area with 75 respondents representing (78.2%), follows by transportation troubles with 70 (72.9%), water issues 63 (65.5%) visitor experience and inadequate guard 61 (63.5%), air/water pollution 54 (56.3%), waste management 47 (49%), climate change/global warming had 75 (78.1%), and the least was found in foreign invaders and invasive species which has (34.4%) and (26%) respectively.

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Keywords: Biodiversity, Human activities, Effects, Mayo Selbe, Gashaka, Nigeria.

1. INTRODUCTION

Biodiversity is the wealth of life forms found on earth, that describe nature's variety including both the number and frequency of plant and animal species as well as microorganisms (Meduna *et al*, 2009; Audu and Ayuba, 2016) and diversity living things (Wilson and Tisdell, 2001). It has several components, such as composition, number of abundance, spatial distribution and interactions of species, genotype, trials, population, functional types and landscape units in a given ecosystem (Diaz *et al*., 2015).

Biodiversity conservation on the other hand is a very popular approach in environmental science and has long remained a central theme in ecology and rangeland management. Conservation of biodiversity could either be in-situ or ex situ. It is critical to the maintenance of healthy environment, and its role in meeting human needs directly while maintaining the ecological process upon which our survival depends is enormous (Dushyant and Mishra, 2011).

It provides direct benefits such as food, medicine and can affords us a life support system (Saidu, 2017), required for the recycling of essential elements (Carbon, Oxygen and Nitrogen). Notwithstanding, biodiversity conservation has encounter a lot of challenges even when most populace especially the rural dwellers agrees to the values and benefits accrue from it. In the same vein, returning an area to its original state is not only costly but demanding and often difficult.

It has been estimated that, over 40 percent of the global economy is based on biological products and processes (Christ *et al*., 2003). However, outright conflict between conservation and indigenous approach has been the major problem of biodiversity conservation in Nigeria (Osunsina and Fagberiro, 2015) outdated polices, laws and poor funding (Saidu, 2017). Even though the country can boast of its protection and conservation network through national parks, forest and game reserves distributed across the country's vegetation, residents around protected areas have long- established sedentary agricultural systems and traditional ways of extracting resources from areas of ecological importance (Ogunjinmite, 2007), consequently resulting to biodiversity depletion, decline in rangeland productivity and made ecotourism in Nigeria's protected areas unattractive. On a global scale, ecotourism is growing because of its international appeal (Lowman, 2004), through protection of the environment, economic sustainability, cultural integrity enhancement and education (UNWTO, 2002). According to World Tourism Organization, wildlife-based tourism contributed 35.8% and 4.6% to total export and Gross National Product respectively for Kenya, in Nigeria was about 1.1% and 0.2% for export and Gross National Product respectively (Ayodele *et al*., 2004). The sad part aspect now is the destruction caused to landscape during oil exploration and oil pollution, which has killed many animals, rendered many homeless and destroyed their livelihood (Meduna *et al*, 2009). Biodiversity conservation, rangeland productivity and ecotourism activities have inter-connected network on the nation at large if well managed. Knowledge about biodiversity conservation challenges is valuable in stimulating technological innovation and providing the framework for sustainable development (NBSAPs, 2015). Thus, reliable institution mandated to protect these natural endowments need to be strengthened and supported (Saidu, 2017). The Protected Areas like Gashaka-Gumti National parks are meant to promote sustainable harvest, conservation

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education, and ecotourism and benefit the host community. Therefore, this study sought to identify illegal activities carried out in the park by households in communities bordering the park, assess management problems and their implication on rangeland productivity and ecotourism activities.

2.PROBLEMS STATEMENT

Human activities are largely responsible for biodiversity loss. It is estimated that about 27000 species become extinct every year. If this goes on 30% of world's species may be gone by the year 2050. The current extinction rate is 100 to 1000 times that of natural rate of extinction. Other human activities are: habitat destruction, invasive species, pollution, population and over exploitation of natural resources. Rapidly increasing population has forced down the men to cut own the forests to fulfill the requirements of food and shelter. Deforestation has led to the destruction of the habitats of plants and animals. Loss of habitats the most important cause of extinction of species. Habitat extinction compels the species to move where they find it difficult to adapt and this may ultimately lead to their extinction. Physically larger species and those living at lower latitude or in the forests or oceans are more sensitive to reduction in habitat area (Drakare *et al.*, 2006). Human activities like deforestation, pollution, overpopulation are ultimately responsible for habitat destruction.

3.MATERIALS AND METHODS

Study area

Gashaka Gumti National Park is Nigerias largest national park and was established in 1991. It is located along Cameroon border. The history of the name is derived from two regions oldest and historical settlements- Gashaka village in Taraba state and Gumti village in Adamawa state. It is the largest single conservation area in Nigeria, covering an area of 6,731 km2; the park is a unique area of high nature conservation value, located in the sub-tropical zone of eastern high lands of the savanna area of Nigeria. It lies between Latitude 6° 55' and 8° 05' N and Longitude 11° 11' and 12° 13' E (Mubi and Tukur, 2012; Malik et al., 2016).

The annual temperature range is approximately 21-32.5C (69.8-90.5F). The region experiences dry and wet seasons. The weather regime is continental with precipitation regimes of wet summer and dry winter.

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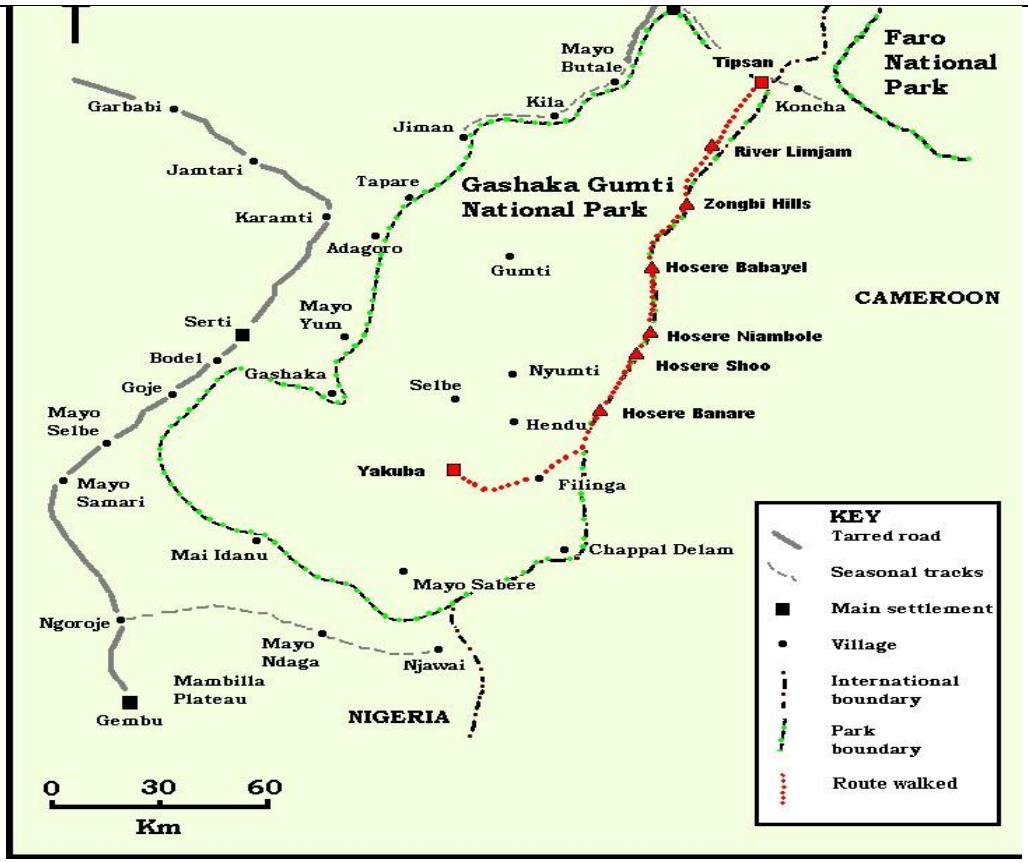

Figure 1: showing Gashaka Gumti National park.

Source : Ogunjinmi 2015

Study Design

The study employed the descriptive survey design using both quantitative and qualitative method as means of data collection in order to find answers to the stated research objectives. This design was adopted because the study is heavily reliant on description of the various human activities in the study and devastating effects due to altering the natural biodiversity of an environment as well as the views and ideas from respondent on the challenges facing the park. It is a survey in nature because it was involved large sample respondent.

Target Population

The target population of this study was 200 people of the study area and some selected staff of Gashaka Gumti National park.

Sample Size

The sample size for this study was 133 obtained from the targets population of 200 in the selected respondents. This sample size was arrived at using Slovenes Formula for sample size determination, which state that for any given population size sample n= $\frac{N}{1+N(e2)}$ using this formula the sample was arrived as follows:

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N= Target population (200)

n= sample size

e= level of significance =0.05=e^2 $(0.05)^2$

$$n= \frac{N}{1+N(e2)} = 0.0025$$

$$n= \frac{200}{1+200\ (0.05)2}$$

$$n= \frac{200}{1+200\ (0.0025)}$$

$$n= \frac{200}{1+0.45} = \frac{200}{1.5} = 133$$

n= 133

Sample size =133

Sample size for each of the categories

$$n_1= \frac{N1}{N} \times n$$

N = Target population
n = Sample size

$$n_1 = \frac{150}{200} \times 133$$

n_1=0.75 × 133
$n_{1=}$ 100

$$n_2 = \frac{150}{200} \times 133$$

n_2=0.25 ×133

Sampling Strategies

Considering the number of the research population and due to the fact that the respondents especially the local people residents would not be found assemble at the place for the questionnaire to be administered, the convenient and snowball sampling strategies was used where every potential respondent met involved in the study who then led the researcher to other respondents. Similarly, the simple random sampling method of sampling was used to select the park staff.

Research Instrument

A self-made closed ended questionnaires was used for data collection. One set of the questionnaire will be given to local residents while the other will be given to the officials of the park. Both questionnaire had the responses of strongly Agree SA, Agree A, Disagree D, and

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strongly disagree SD. Some of the respondent may be illiterate, the questions were read and explain to them and their views was recorded.

Validity of the Instrument

In order to test the validity of the instrument that was used in the study, the questionnaire was given to 3 academic experts in the field to rate the validity of the questions in the questionnaires. The interview guide was scrutinized by the expert.

Data Collection Procedure

A set of structured questionnaire was administered to local resident selected communities bordering the park while the second set to the staff of the park. An Introductory letter was obtained from the University and presented at every necessary place of data collection. A total of 133 questionnaires were administered on the local residents to collect data on the major human activities on biodiversity as well as the effects of human activities on biodiversity in the study area.

Data Analysis

The frequency, percentage, distribution tables was used to analyze data on the stated research objectives. The SPSS version 12.0 was used for the analysis of the data collected to analyze data on the various human activities on biodiversity, devastating effects, challenges faced in the park as well as possible control measures in the study area.

Ethical Considerations

To ensure ethical standard, the introductory letter will be presented at all data collection points. In addition to explaining to the respondents the purpose of the study. Respondents will only participate with their consents. All information that will be obtained will basically for the purpose of the study only. Besides, in order to avoid plagiarism, all quoted by other authors will be dully referenced and cited. Whenever in doubt, clarifications from the research community as well as the supervisor will be consulted.

4.RESULTS

Responses rate

The researcher administered 133 questionnaires to the respondents 96 questionnaires were retrieved correctly filled and answered. This gave retrieval rate of 72.3%, Amin, 2005 reported that if the responses rate is more than 70% it is enough to carry on and continue with data analysis.

Demographic characteristics of the local people

Here the demographic characteristics of the respondents as captured in the questionnaires are interpreted and briefly discussed. The demographic characteristics captured include gender, age, marital status, level of education, occupation, household size, number of years in the area and source of meat being used.

Table 1 Showing the profile characteristics of the respondents

DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS.		
Variables	**Frequency**	**Percentage**

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SEX		
Male	71	74%
Female	25	26%
AGE		
15-20	4	4.20%
21-30	11	11.50%
31-40	50	52.10%
41 and above	31	32.3%
MARITAL STATUS		
Married	60	62.5%
Single	22	22.9%
Separated	10	10.4%
Widower	4	4.2%
EDUCATION		
Primary	39	40.6%
Secondary	35	35.4%
Diploma/NCE	22	22.9%
HND/Bachelors	1	1.1%
Masters	0	0
OCCUPATION		
Farming	35	36.5%
Hunting	22	22.9%
Trading	20	20.8%
Civil servant	10	10.4%
Student	9	9.4%
HOUSEHOLD SIZE		
1-5	28	29.2%
6-10	26	27.1%
11-15	30	31.3%
16-20	10	10.4%
Above 21	15	15.6%
NUMBER OF YEARS IN THE AREA		
1-5	**10**	**10,4%**
6-10	**20**	**20.8%**
11-15	**31**	**32.3%**
16-20	**20**	**20.8%**
Above 21	**15**	**15.6%**
SOURCE OF MEAT BEING		

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USED		
Bush meat	**60**	**63.5%**
Livestock	**14**	**14.6%**
Fish	**15**	**15.6%**
Others	**7**	**7.3%**

The result obtained in Table 1 above shows that out of the 133 questionnaires distributed only 96 were successfully retrieved. Male respondents were 71 (74%) while female respondents were 25 (26%). Age variable among respondents indicated that those within the age group of 31-40 years had the highest frequency with 50 respondents (52.1%) followed by the age group of those above 41 years with 30 respondents (32.3%). Respondents in the age group of 15-20 and 21-30 years were 4 (4.2%) and 11 (11.5%) respectively. The marital status of the respondents was mainly dominated by the married ones comprising of 60 (62.5%) while the least group was that of the widows with 4 (4.2%) respondents. Others were the single and the separated respondents with 22 (22.9%) and 10 (10.4%) respectively. Those with higher education certificates comprised of Diploma/NCE holders who were 22 (12.5%) and only 1 (1.1%) respondent was found to have a Bachelor's certificate.

Besides, the Table also showed the economic activities mainly engaged by the local communities in the area. It was revealed that majority of them 35 (36.5%) engage in farming activities. Other occupation engaged by the respondents were hunting 22 (22.9%), trading 20 (20.8%), civil servants 10 (10.4%) and students who were 9 (9.4%). The typical African tradition with regards to household size was also indicated in this study where majority of the household sizes were found to be big. Many of the respondents, 81 (70.8%) had household sizes between 6 -21 and above. Unsurprisingly, as it is the case in many African rural areas, majority of the respondents were found to have resided in the area for quite a long time and most probably indigenous of the area. It was discovered that 66 (68.7%) of the respondents had stayed in the area for 11 to more than 21 years. Expectedly, the study was also able to find out the major source of meat in the study area. These findings agree with many others indicating that, in most Africa rural areas. Out of the 96 local people who responded to the questionnaires, 60 (62.5%) agreed that their main source of meat is the bush meat while only 14 (14.6%), 15 (15.6%) and 7 (7.35) respondents stated that they use livestock, Fish and Others as the source of meat in their houses.

Table 2: The major human activities on the environment that influencing loss of biodiversity

#	**Which of the following human activities that lead to the loss of biodiversity in the study area?**	**4**	**3**	**2**	**1**
1	Bush Burning or Wildfires	**21(21.9%)**	**48(50%)**	**19(19.8%)**	**8(8.3%)**

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2	Illegal Hunting	**36(37.5%)**	**50(52.1%)**	**10(10.4%)**	**0(0,00%)**
3	Over Poaching	**26(27.1%0**	**34(35.4%)**	**23(23.9%)**	**13(13.5%)**
4	Livestock Ranching and Over Grazing	**29(30.2%)**	**42(43.7%)**	**21(21.9%)**	**5(5.2%)**
5	Agricultural activities, such as use of fertilizers and pesticides	**40(41.6%)**	**28(29.2%)**	**17(17.7%)**	**11(11.5%)**
6	Illegal Logging	**28(29.2%)**	**47(48.9%)**	**17(17/7%)**	**4(4.2%)**
7	Overpopulation and Poverty	**22(22.9%)**	**50(52.1%)**	**18(18.7%)**	**6(6.3%)**
8	Timber extraction	**11(11.4%)**	**27(28.1%)**	**36(27.1%)**	**32(33.3%)**
9	Over exploitation of Resources	**29(30.2%)**	**39(40.6%)**	**18(18.8%)**	**12(2.4%)**
10	Industrialization and Urbanization	**0.(0.00%)**	**36(37.5%)**	**10(10.4%)**	**50(52.1%)**

Table 3: The major effects of biodiversity due to the various human activities on the environment

#	**Which of the following are major effects of biodiversity loss due to the various human activities on the environment?**	**4**	**3**	**2**	**1**
11	Reduction in fauna and flora species	**41(42.7%)**	**21(21.9%)**	**22(22.9%)**	**12(12.5%)**
12	Global warming and Climate change	**21(21.9%)**	**5(5.2%)**	**45(46.9%)**	**25(26.0%)**
13	Degradation of the environment	**32(33.3%)**	**7(7.3%)**	**36(37.5%)**	**21(21.9%)**
14	Reduction in tourist inflow	**31(32.3%)**	**9(9.4%)**	**17(17.7%)**	**39(40.6%)**
15	Reduction of revenue generation	**38(39.6%)**	**18(18.8%)**	**19(19.8%)**	**21(21.9%)**
16	Reduction in management practices	**33(34.4%)**	**21(21.9%)**	**20(20.8%)**	**22(20.8%)**

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17	Soil erosion	**37(38.5%)**	**29(30.2%)**	**18(18.8%)**	**12(12.5%)**
18	Wildlife extinction and habitat loss	**30(31.3%)**	**23(23.10%)**	**29(30.2%)**	**14(14.6%)**
19	Biodiversity loss	**41(42.7%)**	**27(28.1%)**	**21(21.9%)**	**7(7.3%)**
20	Pollution	**31(32.3%)**	**25(26.0%)**	**32(33.3%)**	**8(8.3%)**

Table 4: The possible control measures of managing the effects of biodiversity loss as a result of various human activities in the study area.

#	**Which of the following measure if put in place would be effective in controlling the effects of biodiversity loss in the study area?**	**4**	**3**	**2**	**1**
21	Government restrictions and policies	**41(42.7%)**	**21(21.9%)**	**22(22.9%)**	**12(12.5%)**
22	Education/awareness	**41(42.7%)**	**34(35.4%)**	**11(11.5%)**	**10(10.4%)**
23	Protection of species and habitat	**39(40.6%)**	**31(32.3%)**	**15(15.6%)**	**11(11.5%)**
24	Stop deforestation and increase afforestation	**56(58.3%)**	**24(25%)**	**15(15.6%)**	**1(1.1%)**
25	Prevent overhunting and overfishing	**49(51.1%)**	**22(22.9%)**	**22(22.9%)**	**3(3.1%)**
26	Prevent species invasion	**33(34.4%)**	**39(40.6%)**	**18(18.8%)**	**6(6.2%)**
27	Stop pollution	**25(26.0%)**	**45(46.9%)**	**24(25%)**	**2(2.1%)**
28	Stop over-exploitation of resources	**60(62.5%)**	**25(26.0%)**	**10(10.4%)**	**1(1.1%)**
29	Stop over-consumption	**19(19.8%)**	**28(29.2%)**	**33(34.4%)**	**16(16.7%)**
30	Save energy and convince others	**30(31.3%)**	**3(3.1%)**	**31(32.3%)**	**32(33.3%)**

Table 5: The major issues facing Gashaka Gumti National Park

#	**Which of the following are the**	**4**	**3**	**2**	**1**

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	major issues facing GGNP?				
31	Wildlife Management	54(56.3%)	21(21.9%)	21(21.9%)	1(1.1%)
32	Foreign Invaders	30(31.3%)	3(3.1%)	31(32.3%)	32(33.3%)
33	Adjacent Development	20(20.8%)	21(21.9%)	25(26.0%)	30(31.3%)
34	Climate Change/Global Warming	38(39.6%)	37(38.5%)	19(19.8%)	2(2.2%)
35	Water Issues	32(33.3%)	31(32.3%)	30(31.3%)	3(3.3%)
36	Air/water Pollution	21(21.9%)	33(34.4%)	22(22.9%)	20(20.8%)
37	Transportation Troubles	41(42.7%)	29(30.2%)	21(21.9%)	5(5.2%)
38	Visitor Experience/ inadequate Guard	39(40.6%)	22(22.9%)	21(21.9%)	14(14.6%)
39	Invasive Species	22(22.9%)	3(3.1%)	31(32.3%)	40(41.7%)
40	Waste Management	21(21.9%)	26(27.1%)	21(21.9%)	28(29.1%)

6.INTERPRETATION OF THE MAJOR FINDINGS

Table 2 above present the responses of the respondents on the major human activities on the environment that influencing loss of biodiversity. According to the table majority of the respondents agrees that illegal hunting is the major human activities in the study area that affect biodiversity which have 86 respondents representing (89.6%), follows by illegal Logging with 75 respondents (78.1%), Agricultural activities, such as use of fertilizers and pesticides with **7**1 respondents (73.9%)**,** Overpopulation and Poverty with 72 respondents (75%), Bush Burning or Wildfires which has 69 respondents (71.9%). Unsurprisingly, majority of the respondents did agree that the impact of human activities on the environment are far reaching. Also agricultural activities, such as use of fertilizers and pesticides with 68 respondents representing (70.8%), Over exploitation of Resources with 68 respondents (70.8%) did also agreed that the above human activities on the environment seriously leads to loss of biodiversity.

According to the finding on the objective two the major effects of biodiversity due to the various human activities on the environment, the study revealed that biodiversity loss with 68 respondents representing (70.8%), follows by Soil erosion which has 66 respondents representing (68.8%), reduction in fauna and flora species with 62 respondents (64.6%), pollution with 56 (58.3%), reduction in management practices with 56 (58.3%), wildlife extinction and habitat loss with 53 respondents (55.2%), reduction of revenue generation with 56 (58.3%) are the major effects on biodiversity due to the various human activities in the study area. Surprisingly, other respondents also did not agree that Global warming and Climate change is experienced in the study as result of human activities which has 70 respondents representing (71.0%).

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Table 4 above present the response of the respondents on the possible control measures of managing the effects of biodiversity loss, and the finding revealed that i the following measures would be put into use, there is going to be an effective management in controlling the effects of human activities on the environment that led to the loss of biodiversity such as by stopping over-exploitation of resources which was agreed by 85 respondents representing (88.5%), follows by afforestation with 80 respondents (83.3%), education/awareness 76 (79.2%), preventing species invasion also agreed by 72 respondents (75%), Protection of species and their habitat with70 (72.9%) preventing overhunting and overfishing has 71 respondents representing 73.10%) preventing pollution with 70 (72.9%), and government restrictions and policies which has 62 respondents presenting (64.6%).

Table 4 above present the responses of the respondents on the major issues facing Gashaka Gumti National Park. The finding based on the responses from the respondents, the study revealed that the issues facing Gashaka Gumti National Park (GGNP) are wildlife management which was agreed by the majority of the respondents 75 (78.1%), follows by climate change and global warming with 75 respondents (78.1%), transportation troubles with 70 respondents (72.9%), water issues with 63 (65.6%), visitor experience with 61 (63.5%) air pollution with 54 respondents (56.3%), waste management with 47 (48.10%), and the least ware adjacent development with 41 respondents representing (42.7%), foreign invaders with 33 respondents (34.4%), and invasive species with 25 respondents representing 25(26.0%)%).

7. DISCUSSION

In order to fully understand the findings of the study, it was deemed good to also capture some of the characteristics of the local communities, hence, demographic characteristics of the respondents in terms of sex, age, marital status, level of education, occupation, household size, number of years of residency in the area as well as source of energy being used. Firewood or wood fuel serves as a major source of domestic energy for cooking. This natural resource is so important to the inhabitant of rural and some urban communities where it is harvested and stored in order to reduce its moisture content for use as firewood. According to the findings of this study, 74% of the respondents were male while the female sex was 26%. In the administration of the questionnaires, emphasis was mainly given to those respondents concerned with various human activities on the environment either directly or indirectly. This could be the reason why majority of the respondents happened to be men, because men were mostly involved in this activities. (Etakhrumen,2007), men are seen to be the major partakers in the business of logging farming on the environment which ranges from cutting down tree species in the forest, rolling the log down the mountain top, transporting the logs from the forest to collection centers and loading the logs onto trailers. The reason is probably due to the nature of the job which is extremely physical and labor intensive and above all risky. The result agrees with the findings of Manfre and Rubin (2012), who reported that men contribute more to household income than women because their forest activities are income generating whereas women are more involved in subsistence activities. This result also agrees with report of the International Labour Organization (ILO) (2016), that in the United States, only 6.3% of women worked in male denominated occupations in 2016 and only 3.2% are involved in logging.

In terms of age, it was discovered that majority of the respondents were young men of age between 31-40 years (52.10%) while those between the ages of 15-20 and 21-30 were

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represented by 4.20%% and 11.50%% respectively. Those above 41 years of age were represented by 32.3%. Analysis of the age related data shows that young men of ages 31-40 were the majority and the ones mostly involved in this activities. This finding agrees with the findings of other similar studies such as that of Abdul Rahman et *al*., (2008), who revealed that young, strong and able men with secondary or no secondary education are all major actors in the tree felling or timber extraction and farming. Variations in marital status of the respondents showed that, majority of them 62.5%% were married while those who were yet to marry were represented by 22.9%%. Separated and widowed respondents were represented by 10.4% and 4.2% respectively. This finding further confirms the culture of most communities in the North eastern states of Nigeria where young men and women get married at early ages of 25 years and 15 years respectively. This finding corresponds with that of Omolehin *et.al*., (2007) who reported that married men are more conscious of the need to get better livelihood so that they could meet their family food needs.

With regards to their level of education, majority of the respondents 39 (40.6%) had only primary education, 35 (35.5%) has only secondary education, while only 22.9% claimed to have obtained postsecondary educations indicating that majority of the local people end their education after finishing primary or secondary schools. This is common in many rural communities in northern Nigeria where majority of kids engage in farming at early age instead of enrolling in schools. Just as it is the case in many rural communities in Nigeria, analysis of the respondents' occupation indicated that farming dominated the categories of the people's occupation with 36.5% followed by hunting 22.9%. Other categories of occupations found were trading, civil servants and fishermen represented as 10.4%, and 9.4% respectively. Typical of many African rural communities, the study found that household sizes in the study area were relatively big ranging from 11-15 family members represented by 31.3%. Besides, 28 respondents 29.2% claimed to have family members above 21. This could be attributed to the fact that, most rural communities in Nigeria lack basic western education as well awareness on family planning because it is believed that the larger a family is the stronger and self-reliant it is.

Many of the respondents 32.3% stated that they lived in the area for more than 20 years while only 20.8% lived in the area for 16-20 years with few 10.4% claimed to have resided in the area for more between 1-5 years. This indicates that, all the respondents 100% were residents of mayo selbe area of Gashaka LGA. Just as it is the practice in many Africa rural communities, bush meat was found to be the most commonly used source of meatl in the area because out of the 60 respondents who participated in the study, 60 (63.5%) stated that they only use bush meat as the source of fuel in their houses. This finding further confirms findings of Usman D.D (2018) who stated that bush remains the major source of meat in most part of developing world.

The finding of this study revealed that the most commonly human activities on the environment that affect biodiversity are illegal hunting which had the responses rate of 86 respondents representing (89.6%), illegal logging 75 (78.1%), follows by over population and poverty 72 (75%), livestock ranching and over grazing 71 (73.9%), bush burning 69 (71.9%), agricultural activities with 68 respondents (70.8%), biodiversity loss 68 (70.8%), pollution 56 (58.3%), soil erosion 66 (68.7%), over poaching, 60 (62.5%). The finding also revealed that reduction of fauna and flora species were the major effects of human activities on biodiversity which had 62 respondents representing (64.6%), follows by reduction in revenue generation 56 (58.4%),

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reduction in management practices 55 (56.3%), wildlife extinction and habitat loss 54 (54.4%), degradation of the environment 39 (40.6), global warming and climate change 26 (27.1%). This indicated that biodiversity loss is experienced in the study area due to the various human activities on the environment. The finding of this study agreed with that of Magama (2018) who reported that agricultural activities, fishing, irrigation, meat production, oil industry, mining, transport were the major human activities on the environment that influencing biodiversity loss.

Similarly, the finding on the objective two the major effects of biodiversity due to the various human activities on the environment, the study revealed that biodiversity loss with 68 respondents representing (70.8%), follows by Soil erosion which has 66 respondents representing (68.8%), reduction in fauna and flora species with 62 respondents (64.6%), pollution with 56 (58.3%), reduction in management practices with 56 (58.3%), wildlife extinction and habitat loss with 53 respondents (55.2%), reduction of revenue generation with 56 (58.3%) are the major effects on biodiversity due to the various human activities in the study area. Surprisingly, other respondents also did not agree that Global warming and Climate change is experienced in the study as result of human activities which has 70 respondents representing (71.0%). This finding is in line with the finding of (Noss et al., 2005) who reported that there are three main problems that causes loss of biodiversity and species extinction which include habitat loss which is described as the complete destruction of a habitat due to the various human activities such farming, logging, and fuel wood harvesting activities. All these problems that result in loss of biodiversity are directly related to human influence. Besides, the finding also is in line with that of (Climate, 2005) who reported that direct and indirect action by humans have resulted in the decrease of biodiversity. The convention of biological diversity states that there are both direct and indirect drivers. Some of the indirect human drivers are demographic, economic, sociopolitical, scientific and technological, cultural and religious factors. Some of the direct human drivers are changes in local land use and land cover, species introduction, air and water pollution and climate change.

According to community the responses of the local communities, shows that stopping deforestation and increase afforestation, education and awareness is the possible control measure in managing the effects of human activities on biodiversity which was agreed by 80 respondents (83.3%) and 74 respondents representing (78.1%), follows by protection of species and habitat 70 (72.9%), stop over-exploitation of resources 85 (88.5%), prevention of over-hunting and over-fishing 71 (74%), government restricting policies 62 (64.6%), prevention of pollution 70 (72.9%). This finding also agrees to the finding of (Wetsome et al., 2005) who reported that there are actions individuals can make that can assist in helping the biodiversity problem. It is important for government to take actions that will provide a larger scale effect on saving biodiversity. He further stated that government restricting policies, protection of biodiversity and habitat loss were identified as a measure in managing the menace of various human activities on biodiversity**.**

Unsurprisingly, the finding also revealed that the wildlife management is a major issues facing the study area with 75 respondents representing (78.2%), follows by transportation troubles with 70 (72.9%), water issues 63 (65.5%) visitor experience and inadequate guard 61 (63.5%), air/water pollution 54 (56.3%), waste management 47 (49%), climate change/global warming had 75 (78.1%), and the least was found in foreign invaders and invasive species which has

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(34.4%) and (26%) respectively. This finding was in agreement with the finding of National Geographic paper published may 26, 2010. Who reported in terms of wildlife management, no park exists in isolation and that fact is becoming increasingly clear as the areas surrounding parks are developed for living space, agriculture, mining, forestry and more. The iconic species protected inside the parks don't recognize boundaries and must or migrate. If larger ecological wildlife corridors cannot be maintained to include the lands outside of parks, many species may not survive within them either.

In terms of foreign invaders, national parks are inviting places, especially for non-native species that can cause havoc once they move in. plants and insects often hitchhike to our shores on boats or airplanes while other species, like snakes are intentionally imported for the exotic pet trade. When turned loose with no competition, invasive species can run amok in an ecosystem and send a parks native residents toward extinction.

In terms of climate change and global warming, if earth's climate continues to change as scientists predict it will, the national parks will be impacted like, the rest of the planet. Glaciers may melt away, as indeed they are at glacier national park montana. Fire season may grow in length and severity, and the landscape may shift under the feet of the parks wild residents.

In terms of water issues, some parks are already feeling drier these days, as increasing human demand shrinks supplies on which aquatic species depend. A fresh water shortage is becoming an issues even though 95% of the park remains covered with seawater.

In terms of transportation troubles and visitor experience, national parks are destination of many a great human road trip. But too many roads within the parks themselves are in disrepair and some pose a real danger to drivers. The same goes for many parts of the parks transportation infrastructure, from shuttle buses to hiking trails. Repairs are always under way but it will take time and money to truly set things right.

8.CONCLUSION

Biodiversity is an issues that affects everyone and therefore everyone should be aware of their effect on biodiversity. As biodiversity decreases on earth, so do the chances of human survival. Therefore, it is important to educate people on living in equilibrium with the environment. It is also important to make sure that the government is making laws that will ensure biodiversity for the future and not focus on shortsighted economics. If humans become extinct, it will likely be a result of their own action or lack of action. Hopefully humans will realize this before it is too late.

The decline in biodiversity of fauna and flora is largely caused by human activities and poses a serious threat to sustainable development. There is the need for urgent and decisive action to conserve and maintain genes, species and ecosystem. Technological developments, coupled with the growing resource needs of rapid population growth, has increased the environmental hazards to biodiversity of all natural ecosystem. The rapid decline in biodiversity in Nigeria could be reversed if there are sound engineering solutions based on ecological awareness. This should be determined on the basis of sound scientific evaluations of the existing resources and the carrying capacity of the ecosystem.

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In areas with rapid population growth, it may be necessary to invest in major carbon and nutrient absorbing systems to avoid further degradation and to preserve the biological productivity of existing systems.

From the findings of the study and the conclusion mentioned above, the study made the following recommendations:

The use of alternative businesses and more job opportunities should be encouraged in the rural areas to discourage some of the human activities the leads to the loss of biodiversity.

1. To maintain the natural abundance and biodiversity of the environment in the study area, the cutting down of trees especially those commonly used as firewood and for other purposes should be well regulated. Other activities such as over-fishing, over-hunting and over-exploitation of resources should also be discouraging. Also, other sources of energy such as charcoal, kerosene and gas should be made readily available and cheap so as to discourage felling down of trees.
2. To be able to tackle such a problem public awareness should be encouraged by way of enlightenment via mass media and green promotion NGOs to awaken the public on the danger of continual dependency on the use of natural resources. Government should include tree planting as one of the compulsory extracurricular activities or introducing environmental education as a compulsory course of study at all levels of schooling in the entire country.
3. Nursery plots should be established where seedlings of tree species especially those commonly cut down for different purposes so that local communities can be encouraged to pick and plant them so as to curb the impacts of felling down of trees in the area. Orientation of the general public, the solution discussed above will be more effective if general public re-oriented on the need to preserve the forest and its associated biodiversity that we have and the adverse effects of continuous destruction of the biodiversity.
4. Incorporation of indigenous knowledge, practices and skills into modern methods of conservation through local participation, in conservation initiatives in order to develop sustainable conservation programmes.
5. Initiation of education and awareness programmes targeted at children and the youth, stressing the diresct and indirect values of wildlife and the scientific basis of radiional conservation.
6. Integration of both traditional and modern knowledge systems of biodiversity conservation into school curricular.

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