Journal of Integrative Science and Societal Impact
January-June 2026 2(1)
https://jissi.org

Original Article

# PERCEPTION AND ATTITUDE OF PEOPLE TOWARDS WILDLIFE IN COMMUNITIES AROUND KAINJI LAKE NATIONAL PARK, NIGER STATE, NIGERIA: IMPLICATION ON BIODIVERSITY CONSERVATION

**Bunza M. S.** [1*], **Abosede O. Omonona** [2], **Dododawa Z.** [3]
[1] Department of Forestry and Environment, Usmanu Danfodiyo University Sokoto, Nigeria
[2] Department of Wildlife and Ecotourism Management, University of Ibadan, Nigeria
[3] Department of Forest Resources and Wildlife Management, University of Benin, Nigeria

## ABSTRACT

Protected areas (PA) provide valuable habitats for wildlife and are considered as ecotourism hotspots, worldwide. Nonetheless, wild animals can have significant impacts on livelihoods of communities surrounding PA. In turn, locals can develop a negative attitude towards wildlife, escalating conflict and undermining conservation initiatives. However, there is paucity of information on factors influencing peoples' perception and attitude towards wildlife in Kainji Lake National Park (KLNP). Therefore, this study was designed to examine the factors influencing perception and attitude of people towards wildlife in KLNP. Communities were stratified into three groups: A (<3 km), B (3-6 km) and C (>6 km), based on their distances from KLNP boundary. Twenty three communities were purposively selected based on accessibility. A total of three hundred and twenty two (322) household heads were conveniently selected for this study. Data were analyzed using descriptive statistics and logistic regression at α0.05. Majority (66.1%) of the respondents are male, married (78.3%), and they are mostly farmers (52.8%) with an annual income ranging from ₦100,000-₦200,000.00. Significant positive predictors of household attitude towards wild animals were income (β=2.14) and education (β=1.01) in communities A (R2=0.41). Gender (β=0.63) and crop raiding (β=-2.15) were significant positive and negative predictors of respondents' attitude in communities B (R2=0.23). Only destruction of stored food (β =0.171) was a significant positive predictor of households' attitude in communities under category C (R2=0.36). Income (β=1.527) and education (β=1.228) were significant positive predictors of perception in category A while income (β=2.446) and education (β=0.942) predicted respondents' perception in communities under category C (R2=0.17). Expansion of formal and adult education as well as livelihood diversification (skills acquisition programs) would go a long way in improving community attitude towards wildlife.

**Keywords:** Attitude, Households, Crop raiding, Wildlife Conservation

## INTRODUCTION

Generally speaking, rural communities in developing countries have little concern for game species and see them exclusively in terms of their meat value and a threat to their survival. This ugly perception is more common in adjoining communities of protected areas where peoples' interaction with wild animals imposed daily costs on rural areas Anthony et al. (2010). In turn, locals can develop a negative attitude towards wildlife, escalating conflict and undermining conservation initiatives. The longstanding negative attitude of local people towards game species originates from losses (human life, properties, field crops and even cultivated lands

*Corresponding Author:
**Email address:** Bunza M. S. (sani.mustapha@udusok.edu.ng), Abosede O. Omonona (aomonona@yahoo.com), Dododawa Z. (zubeiru.dododawa@uniben.udu.ng)

**Received:** 06 November 2025; **Accepted:** 20 December 2025; **Published** 15 January 2026
**DOI:** 10.29121/JISSI.v2.i1.2026.21
**Page Number:** 1-11
**Journal Title:** Journal of Integrative Science and Societal Impact
Online ISSN: 3108-2165, Print ISSN: 3108-1959
**Journal Abbreviation:** J. Integr. Sci. Soc. Impact
**Online ISSN:** 3108-2165, **Print ISSN:** 3108-1959ss
**Publisher:** Granthaalayah Publications and Printers, India
**Conflict of Interests:** The authors declare that they have no competing interests.
**Funding:** This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.
**Authors' Contributions:** Each author made an equal contribution to the conception and design of the study. All authors have reviewed and approved the final version of the manuscript for publication.
**Transparency:** The authors affirm that this manuscript presents an honest, accurate, and transparent account of the study. All essential aspects have been included, and any deviations from the original study plan have been clearly explained. The writing process strictly adhered to established ethical standards.

used for conservation purposes) encountered during the interface. Nowadays, linking of wild animals with conflict is now well ingrained in the psyche of rural residents to the extent they can even blame innocent and beneficial species Andrade and Rhodes (2012). The tolerance level for conflicts by rural communities depends on the nature of the damage or species involved in the conflict Browne-Nuñez and Jonker (2008). For instance, local communities in Africa generally have a complex and negative perception towards lions, elephant and crocodiles Carter et al. (2013). And there appears to be very little native knowledge left regarding the functions of these species in the natural ecosystems, particularly crocodiles Dickman (2010)

Over the past few years, wildlife and human competition for resources and space has escalated due to the alteration of natural environments from primarily wild to modified landscapes. As a result of the swift expansion of human populations, and the rapid growth of settlements, competition for resources has even reached unprecedented levels Food and Agriculture Organization (2009). Wildlife habitats have drastically decreased as a result of the conversion of forested areas into other uses, such as agriculture and human settlements, brought on by the growing demand for land, energy, and raw materials. Animal populations were pushed into smaller areas as a result of the destruction, fragmentation, and isolation of natural habitats, which also increased the level of conflict between humans and wildlife. These increases more chances of conflict as wildlife tend to meet their needs in terms of nutrition, ecology, and behavior Mc Guinness and Taylor (2014), Idowu et al. (2011), Milupi et al. (2023). Despite the fact that almost all nations are affected by Human-Wildlife Conflict, some countries (developing nations) such as Tanzania, Ethiopia, Kenya and Nigeria are at higher risk than developed countries like UK and USA since agriculture and livestock are essential component of rural livelihoods in these areas Kideghesho et al. (2007), Lamarque et al. (2009).

Managing Human-Wildlife Conflicts requires not only a scientific understanding of the issues but also an evaluation of the local population's attitudes toward wildlife McGregor (2004). According to Odebiyi and Alarape (2017), in order to make sure that biodiversity conservation policies are successful and appropriate for the local environment, it is critical to understand social factors, such as the attitudes of the local population, which provide a broad picture of the cultural, social and political background of human-wildlife conflict. Evaluating the attitudes of the local population can reveal information about their future behavior that include but not limited to their readiness to coexist with wild animals, compliance with the rules governing the use of the park resources, their responses to financial losses brought on by wildlife and so on

By conducting surveys to gauge public opinion, it is possible to forecast how public opinion will affect conservation policies and vice versa, enabling a robust planning and management techniques Omonona et al. (2017), Shibia (2010). Attitudes of the local population toward conservation were adversely affected by the potential threat of conflicts between people and wild animal species. Locals' attitudes toward wildlife are also influenced by their personal experiences and beliefs, as well as the various economic, legal, social, and ecological considerations Tarrant et al. (2016), Tessema et al. (2010). Effective conservation measures are unlikely to be successful without comprehensive knowledge about the conflict and the attitudes of the local population toward wildlife.

## MATERIALS AND METHODS

### DESCRIPTION OF THE STUDY AREA

The Kainji Lake National Park (KLN) covers an area of over 2000 square miles (over 5000 square kilometer), straddling two Nigerian states (Kwara and Niger). The park was legally created in 1979 via decree 46 of 1979 by the amalgamation of two former game reserves (Borgu and Zugurma). It's Nigeria's first ever national park. Historically, the park is a home to several plants and animal species, including hydrological, cultural and human resources. The common tree species in and around the park include Burkea Africana, Deterium macrocarpum, Afzelia Africana, Isoberlina tementosa and Acacia species Umuziranenge (2019). The park falls under the northern guinea savanna. The common fauna species in the park include Buffalo (Syncerus cafer), Buffon's Kob (Kobus kob kob), Olive baboon (Papio anubis), Roan antelope (Hippotragus equinius), African Bush Elephant (Loxodonta africana), Senegal kob (Kobus kob), Western hartebeest (Alcelaphus buselaphus), Bush buck (Tragelaphus scriptus), Hippopotamus (Hippopotamus amphibus), among others Zaffar et al. (2015). Every year, August and September see the most rainfall, with totals ranging from 975 to 1220 mm. The months of March and April typically see the highest temperatures (up to 380C). Although the park is only 500 km away from Abuja, getting there takes eight to ten hours because of the bad state of the roads.

### DATA COLLECTION

Data collection is principal to a research activity particularly a research that include qualitative approach. Therefore, considering the nature of this research, questionnaire administration and Focus Group Discussion (FGD) were used in this study. Semi-structured questionnaire was used to elicit information on peoples' perception and attitude towards wildlife. The questionnaires were mainly targeted on households' heads in the selected communities. But in case of the absence of household head, the most elderly member of the respective household was considered to participate in the study. Questionnaires were administered face to face at the residents' of the participants by the researcher and two other field assistants. Field assistants were trained by the researcher before the commencement of the study. Information on the list of communities and the number of households in each community was obtained from the existing record of the park and traditional rulers of the respective communities.

The relevance of FGD is to obtain additional information to the one provided by the questionnaire. In other words, FGD can help to obtain information that the questionnaire may not be able to capture. Data were gathered and incorporated in the results and discussion in a narrative form, following (20). Three (3) focus group discussions (FGD) involving 12 individuals per groups were considered for this study. Three age groups were formed and considered for FGD. The first group comprised of elderly male participants (50-60 years), second group consists of adult male of middle age (25-35 years) and the third group comprised of elderly female individuals (50-60 years). Meanwhile, all the necessary persons and facilities needed for the successful conduct of this work were made available prior to the commencement of the study.

**SAMPLING PROCEDURE AND SAMPLE SIZE**

This study employed a multi-stage sampling technique. In the first stage, all the communities adjacent to Kainji Lake National Park were stratified by distance into three groups: A (<3 km), B (3-6 km) and C (>6 km). In the second stage, among the communities in the three strata, twenty-three (23) out of thirty-six (36) communities were purposively selected at 30% intensity, proportionate to size (322). Three hundred and twenty-two (322) copies of questionnaire were administered to the sampled households Table 1 to get information on the perception and attitude of households towards wildlife, as well as management strategies adopted. This is in line with the method used by (21).

**Table 1**

**Table 1 Sample Size Distribution**

| S/N | Sector | Communities | Sample frame | Sample size (30%) | Sub-Total |
|---|---|---|---|---|---|
| | | **Category A (>3km)** | | | |
| 1 | Zugurma | Fallagi | 40 | 12 | |
| 2 | | Patiko | 25 | 8 | |
| 3 | | Ibbi | 160 | 48 | |
| 4 | | Mule | 15 | 5 | **108** |
| 5 | | Wuromakoto | 35 | 11 | |
| 6 | Borgu | Malale | 60 | 18 | |
| 7 | | Tungar Magawata | 20 | 6 | |
| | | **Category B (3-6km)** | | | |
| 8 | | Poto | 20 | 6 | |
| 9 | Zugurma | Tungar maje | 50 | 15 | |
| 10 | | Tungar taya | 30 | 9 | |
| 11 | Borgu | Woro | 40 | 12 | |
| 12 | | Nukku | 45 | 14 | **106** |
| 13 | | Tungar mabudi | 55 | 17 | |
| 14 | | Lumma sanke | 80 | 24 | |
| 15 | | Tungar Bala | 30 | 9 | |
| | | **Category C (>6km)** | | | |
| 16 | | Mazakuka | 25 | 8 | |
| 17 | Zugurma | Shafini | 40 | 12 | |
| 18 | | Sabon-pegi | 25 | 8 | |
| 19 | | Gwaji | 15 | 5 | |
| 20 | | Ibrahim lete | 20 | 6 | **108** |
| 21 | Borgu | Kilolio | 30 | 9 | |
| 22 | | Leshibge | 20 | 6 | |
| 23 | | Wawa | 180 | 54 | |
| | | **Total** | **1,060** | **322** | **322** |

## RESULTS AND DISCUSSION

### SOCIOECONOMIC FACTORS OF HOUSEHOLDS IN THE SAMPLED COMMUNITIES AROUND KAINJI LAKE NATIONAL PARK (KLNP)

Results displayed in Table 2, revealed that most of the households participated in this study were males (66.1%), who were between the ages of 41 and 50 (36.3%), followed keenly by the 30-40 years group with 30.4% while above 60 years group had the lowest representation, Majority (78.3%) are married while the least (5.3%) of the respondents are singles. Majority had a household size of 6-10 members. Many (33.2%) had an average annual income of ₦100,000.00 to ₦200, 0000.00, who are mostly farmers (58.2%).

**Table 2**

**Table 2 Socioeconomic Characteristics of Sampled Households in Communities around Kainji Lake National Park**

| Variables | Frequency | Percentage (%) |
|---|---|---|
| **Gender** | | |
| Male | 213 | 66.1 |
| Female | 109 | 33.9 |
| **Age** | | |
| 20-30years | 17 | 5.3 |
| 31-40years | 98 | 30.4 |
| 41-50years | 117 | 36.3 |
| 51-60years | 62 | 19.3 |
| Above 60years | 28 | 8.7 |
| **Marital status** | | |
| Married | 252 | 78.3 |
| Single | 17 | 5.3 |
| Widow | 35 | 10.9 |
| Divorcee | 18 | 5.6 |
| **Educational status** | | |
| None | 87 | 27 |
| Primary | 95 | 29.5 |
| Secondary | 82 | 25.5 |
| College | 20 | 6.2 |
| Polytechnic | 24 | 7.5 |
| University | 14 | 4.3 |
| **Household Size** | | |
| 01-May | 102 | 31.7 |
| 06-Oct | 70 | 21.7 |
| Nov-15 | 120 | 37.3 |
| Above 15 | 30 | 9.3 |
| **Occupation** | | |
| Farmer | 170 | 52.8 |
| Civil servant | 63 | 19.6 |
| Business | 89 | 27.6 |
| **Annual Income** | | |
| < ₦100,000.00 | 30 | 9.3 |
| ₦100,000-200,000.00 | 117 | 36.4 |

| | | |
|---|---|---|
| ₦201,000-300,000.00 | 78 | 24.2 |
| > ₦300,000.00 | 97 | 30.1 |

**Source:** Field survey (2021)

**Table 3**

**Table 3 Distribution of Respondents' Attitude Towards Wildlife Conservation in the Study Area**

| Attitudinal statements | SA | A | N | D | SD | Mean | Standard Deviation | Ranking |
|---|---|---|---|---|---|---|---|---|
| Human-Wildlife Conflict should best be addressed by all stakeholders | 25 (7.8) | 55 (17.1) | 12 (3.7) | 104 (32.3) | 126 (39.1) | 4.1366 | 1.14656 | 1st |
| I believed in reporting conflict to the appropriate authorities | 20 (6.2) | 51 (15.8) | 36 (11.2) | 142 (14.1) | 73 (22.7) | 4.0807 | 1.13002 | 2nd |
| Human-Wildlife Conflict should best be addressed by park staff and community leaders only | 11 (3.4) | 53 (16.6) | 29 (9.0) | 110 (34.2) | 119 (37.0) | 3.7826 | 1.23397 | 3rd |
| Compensation due to wildlife attack and crop raiding is adequate | 33 (10.2) | 64 (19.9) | 30 (9.3) | 112 (34.8) | 83 (25.8) | 3.0186 | 1.62715 | 4th |
| Human-Wildlife Conflict should best be addressed by park staff only | 150 (46.6) | 101 (31.4) | 34 (10.6) | 21 (6.5) | 16 (5.0) | 2.9658 | 1.46041 | 5th |
| Management response to reported cases of conflicts has increase Human-Wildlife Conflict in the study area | 41 (12.7) | 63 (19.6) | 41 (12.7) | 106 (32.9) | 71 (22.0) | 2.6801 | 1.34888 | 6th |
| Traps that injured or kill wild animals should be used by farmers | 36 (11.2) | 89 (27.6) | 63 (19.6) | 92 (28.6) | 41 (12.7) | 2.5404 | 1.33486 | 7th |
| Wild animals involved in the conflicts should be remove completely from the park | 164 (50.9) | 93 (28.9) | 27 (8.4) | 21 (6.5) | 17 (5.3) | 2.3882 | 1.17671 | 8th |
| The best way to deal with wild animals involved in the conflicts is to kill them | 108 (33.5) | 123 (38.2) | 26 (8.1) | 43 (13.4) | 22 (6.8) | 2.2205 | 1.32945 | 9th |
| I support the use of poison to wild animals from attack and destroying my crops | 64 (19.9) | 74 (23.0) | 42 (13.0) | 71 (22.0) | 71 (22.0) | 2.1522 | 1.18603 | 10th |

**RESULTS ON PEOPLES' PERCEPTION TOWARDS WILDLIFE IN COMMUNITIES AROUND KAINJI LAKE NATIONAL PARK, NIGERIA**

Results presented in Table 3 and Table 4 indicated that the residents have a positive attitude towards the attitudinal and perception statements towards wildlife conservation in KLNP.

**Table 4**

**Table 4 Distribution of Respondents' Perception Towards Wildlife Conservation in the Study Area**

| Perception statements | SA | A | N | D | SD | Mean | Standard Deviation | Ranking |
|---|---|---|---|---|---|---|---|---|
| The rate of Human-Wildlife Conflict has increased in this area | 36 (11.2) | 60 (18.6) | 73 (22.7) | 98 (30.4) | 55 (17.1) | 2.7640 | 1.25311 | 13th |
| Conservation of wild animals in this area should continue | 121 (37.6) | 91 (28.3) | 28 (8.7) | 48 (14.9) | 34 (10.6) | 3.6739 | 1.38163 | 4th |
| Wild animals living around this household has increased | 51 | 61 | 84 | 93 | 33 | 3.0714 | 1.23470 | 8th |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (15.8) | (18.9) | (26.1) | (28.9) | (10.2) | | | |
| Proximity to the park is the major factor to Human-Wildlife Conflict in this area | 51 (15.8) | 61 (18.9) | 84 (26.1) | 93 (28.9) | 33 (10.2) | 3.0124 | 1.23545 | 9th |
| Vegetation structure around farmlands increase the rate of Human-Wildlife Conflict in this area | 102 (31.7) | 78 (24.2) | 58 (18.0) | 47 (14.6) | 37 (11.5) | 3.5000 | 1.36774 | 5th |
| Wild animal species are serious threat to the safety and food security of the members of this household | 122 (37.9) | 94 (29.2) | 32 (9.9) | 51 (15.8) | 23 (7.1) | 3.7484 | 1.30255 | 3rd |
| Human-Wildlife Conflict around the park is being exaggerated | 70 (21.7) | 57 (17.7) | 62 (19.3) | 70 (21.7) | 63 (19.6) | 3.0031 | 1.43281 | 10th |
| Human-Wildlife Conflict is a serious threat to wildlife conservation | 73 (22.7) | 75 (23.3) | 67 (20.8) | 93 (28.9) | 14 (4.3) | 3.3106 | 1.22912 | 7th |
| Human-Wildlife Conflict a serious threat to community livelihood | 85 (26.4) | 75 (23.3) | 64 (19.9) | 77 (23.9) | 21 (6.5) | 3.3913 | 1.28094 | 6th |
| I am ready to put my best to ensure that Human-Wildlife Conflict is prevented/control in this area | 133 (41.3) | 94 (29.2) | 54 (16.8) | 28 (8.7) | 13 (4.0) | 3.9503 | 1.13731 | 1st |
| I really care about the success of this park | 119 (37.0) | 116 (36.0) | 33 (10.2) | 40 (12.4) | 14 (4.3) | 3.8882 | 1.16273 | 2nd |
| Wildlife resources in the National Park are the gift of nature and should be use anyhow | 26 (8.1) | 93 (28.9) | 58 (18.0) | 142 (44.1) | 3 (0.9) | 2.9907 | 1.04564 | 11th |
| Pastoralist are more affected by Human-Wildlife Conflict than surrounding communities | 48 (14.9) | 17 (5.3) | 47 (14.6) | 197 (61.2) | 13 (4.0) | 2.6584 | 1.14443 | 14th |
| The rate of employment in this community has increased due to the National Park | 49 (15.2) | 29 (9.0) | 96 (29.8) | 138 (42.9) | 10 (3.1) | 2.9037 | 1.11631 | 12th |
| The rate of Human-Wildlife Conflict has increased in this area | 36 (11.2) | 60 (18.6) | 73 (22.7) | 98 (30.4) | 55 (17.1) | 2.7640 | 1.25311 | 13th |
| Conservation of wild animals in this area should continue | 121 (37.6) | 91 (28.3) | 28 (8.7) | 48 (14.9) | 34 (10.6) | 3.6739 | 1.38163 | 4th |
| Wild animals living around this household has increased | 51 (15.8) | 61 (18.9) | 84 (26.1) | 93 (28.9) | 33 (10.2) | 3.0714 | 1.23470 | 8th |
| Proximity to the park is the major factor to Human-Wildlife Conflict in this area | 51 (15.8) | 61 (18.9) | 84 (26.1) | 93 (28.9) | 33 (10.2) | 3.0124 | 1.23545 | 9th |
| Vegetation structure around farmlands increase the rate of Human-Wildlife Conflict in this area | 102 (31.7) | 78 (24.2) | 58 (18.0) | 47 (14.6) | 37 (11.5) | 3.5000 | 1.36774 | 5th |
| Wild animal species are serious threat to the safety and food security of the members of this household | 122 (37.9) | 94 (29.2) | 32 (9.9) | 51 (15.8) | 23 (7.1) | 3.7484 | 1.30255 | 3rd |
| Human-Wildlife Conflict around the park is being exaggerated | 70 (21.7) | 57 (17.7) | 62 (19.3) | 70 (21.7) | 63 (19.6) | 3.0031 | 1.43281 | 10th |
| Human-Wildlife Conflict is a serious threat to wildlife conservation | 73 (22.7) | 75 (23.3) | 67 (20.8) | 93 (28.9) | 14 (4.3) | 3.3106 | 1.22912 | 7th |
| Human-Wildlife Conflict a serious threat to community livelihood | 85 (26.4) | 75 (23.3) | 64 (19.9) | 77 (23.9) | 21 (6.5) | 3.3913 | 1.28094 | 6th |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| I am ready to put my best to ensure that Human-Wildlife Conflict is prevented/control in this area | 133 (41.3) | 94 (29.2) | 54 (16.8) | 28 (8.7) | 13 (4.0) | 3.9503 | 1.13731 | 1st |
| I really care about the success of this park | 119 (37.0) | 116 (36.0) | 33 (10.2) | 40 (12.4) | 14 (4.3) | 3.8882 | 1.16273 | 2nd |
| Wildlife resources in the National Park are the gift of nature and should be use anyhow | 26 (8.1) | 93 (28.9) | 58 (18.0) | 142 (44.1) | 3 (0.9) | 2.9907 | 1.04564 | 11th |
| Pastoralist are more affected by Human-Wildlife Conflict than surrounding communities | 48 (14.9) | 17 (5.3) | 47 (14.6) | 197 (61.2) | 13 (4.0) | 2.6584 | 1.14443 | 14th |
| The rate of employment in this community has increased due to the National Park | 49 (15.2) | 29 (9.0) | 96 (29.8) | 138 (42.9) | 10 (3.1) | 2.9037 | 1.11631 | 12th |

**FACTORS INFLUENCING PERCEPTION OF THE SAMPLED HOUSEHOLDS TOWARDS WILDLIFE IN KLNP**

Table 5 displays the results on how the different forms of conflict and some socioeconomic parameters of the sampled households were used to predict people's perception of wildlife in KLNP. This further reveals that income (ß=1.527), education (ß=1.228) and Crop raiding (ß=-1.573) influenced the perception of the sampled households in category A. Additionally, income (ß=2.446), education (ß=0.942) and crop raiding (ß=-1.634) influenced households' attitude in category B while income (ß=1.767) and crop raiding (ß=-1.247) were found to be significant positive and negative predictors of households' attitude in communities under category C.

**Table 5**

**Table 5 Factors Influencing Perception of Households Among the Three Categories of Communities (A, B and C) Towards Wildlife Conservation in Kainji Lake National Park (N=322)**

| Communities | Variables | Coefficient values (ß) | Std. error | α0.05 |
|---|---|---|---|---|
| **Category A (<3km)** | **Perception** | | | |
| | Income | 1.527 | 0.283 | 0.004 |
| | Household size | 0.339 | 0.134 | 0.521 |
| | Education | 1.228 | 0.144 | 0.000 |
| | Gender | -0.594 | 0.223 | 0.519 |
| | Marital status | -0.101 | 0.155 | 0.214 |
| | Crop raiding | -1.573 | 0.637 | 0.008 |
| | Livestock depredation | -1.750 | 0.162 | 0.001 |
| | Human attack | 1.063 | 0.418 | 0.265 |
| | Destruction of stored foods | -0.173 | 0.153 | 0.082 |
| **Category B (3-6km)** | **Perception** | | | |
| | Income | 2.446 | 0.236 | 0.000 |
| | Household size | -0.552 | 0.731 | 0.265 |
| | Education | 0.942 | 0.261 | 0.002 |
| | Gender | 0.753 | 0.143 | 0.063 |
| | Marital status | 1.212 | 0.318 | 0.065 |
| | Crop raiding | -1.634 | 0.236 | 0.001 |
| | Livestock depredation | 0.699 | 0.321 | 0.081 |
| | Human attack | 0.519 | 0.274 | 0.461 |
| | Destruction of stored foods | 0.532 | 0.461 | 0.436 |
| **Category C (>6km)** | **Perception** | | | |
| | Income | 1.767 | 0.425 | 0.002 |
| | Household size | 0.398 | 0.527 | 0.363 |

| | | | |
|---|---|---|---|
| Education | -1.637 | 0.218 | 0.631 |
| Gender | 0.682 | 0.431 | 0.241 |
| Marital status | 0.813 | 0.241 | 0.674 |
| Crop raiding | -1.247 | 0.683 | 0.004 |
| Livestock depredation | 0.635 | 0.442 | 0.522 |
| Human attack | 1.433 | 0.251 | 0.469 |
| Destruction of stored foods | 0.073 | 0.826 | 0.087 |

Category A ($R^2$=0.37), Category B ($R^2$=0.29) and Category C ($R^2$=0.17)

**Table 6**

**Table 6 Factors Influencing the Attitude of Households Among the three Categories (A, B and C) Towards Wildlife Conservation in the Study Area**

| Communities | Variables | Coefficient values (ß) | Std. error | α0.05 |
|---|---|---|---|---|
| **Category A (<3km)** | **Attitude** | | | |
| | Income | 2.141 | 0.462 | 0.000 |
| | Household size | -1.725 | 0.612 | 0.071 |
| | Education | 1.014 | 0.381 | 0.002 |
| | Gender | -0.684 | 0.871 | 0.082 |
| | Marital status | -0.759 | 0.526 | 0.062 |
| | Crop raiding | -0.915 | 0.383 | 0.001 |
| | Livestock depredation | -1.186 | 0.841 | 0.003 |
| | Human attack | -0.871 | 0.491 | 0.065 |
| | Destruction of stored foods | -1.652 | 0.739 | 0.701 |
| **Category B (3-6km)** | **Attitude** | | | |
| | Income | -2.133 | 0.396 | 0.003 |
| | Household size | -1.627 | 0.285 | 0.074 |
| | Education | 1.391 | 0.864 | 0.061 |
| | Gender | 0.631 | 0.423 | 0.000 |
| | Marital status | 1.897 | 0.372 | 0.073 |
| | Crop raiding | -2.146 | 0.651 | 0.002 |
| | Livestock depredation | 0.731 | 0.910 | 0.060 |
| | Human attack | 1.643 | 0.527 | 0.921 |
| | Destruction of stored foods | 1.290 | 0.284 | 0.731 |
| **Category C (>6km)** | **Attitude** | | | |
| | Income | 1.438 | 0.742 | 0.831 |
| | Household size | 0.647 | 0.352 | 0.641 |
| | Education | 0.924 | 0.547 | 0.523 |
| | Gender | 0.482 | 0.296 | 0.362 |
| | Marital status | | | |
| | Crop raiding | 1.432 | 0.367 | 0.821 |
| | Livestock depredation | 0.779 | 0.584 | 0.094 |
| | Human attack | 0.534 | 0.718 | 0.231 |
| | Destruction of stored foods | -0.171 | 0.631 | 0.004 |

Category A (R2=0.41), Category B (R2=0.23) and Category C (R2=0.36)

**ORDINAL REGRESSION RESULTS ON FACTORS INFLUENCING ATTITUDE OF THE SAMPLED HOUSEHOLDS TOWARDS WILDLIFE IN KLNP**

Table 6 revealed how the different forms of conflict and some socioeconomic parameters were used to predict local people's attitude towards conservation around KLNP. Negative values obtained and presented in Table 6 means that the likelihood of the dependent variables (attitude) falling at a higher level decreases as the values of the independent variables rise. This further reveals that income (ß=2.141), livestock depredation (-1.186) and Crop raiding (ß=-0.915) were important predictors of attitude of the sampled households in category A. Gender (ß=0.631) and crop raiding (ß=-2.146) influenced households' attitude in category B. However, only the destruction of stored foods (ß=-0.171) was found to be a significant predictor of human attitude in communities under category C.

**DISCUSSION**

**PERCEPTION AND ATTITUDE OF THE SAMPLED HOUSEHOLDS TOWARDS WILDLIFE IN COMMUNITIES AROUND KAINJI LAKE NATIONAL PARK, NIGERIA**

Human-wildlife conflict is increasing across Africa and enlisting the support of local people is critical to conflict mitigation and conservation efforts. Information from attitude surveys can inform management and policy decisions particularly in situations of human-wildlife conflict. In the context of wildlife management, perception studies tend to focus on people's concern about the hazards they associated with wild animals (22). Humans often make their decisions about wild animals based on such perceptions. People's response to wildlife disturbance such as Human-Wildlife Conflict (HWC) and their understanding of the characteristics of the conflict forms the basic and essential foundation on which individuals' develop their perception and attitude. Therefore, for any conservation effort to be successful, the influence of different forms of HWC and socioeconomic factors on the peoples' perception and attitude need to be investigated. Because a feeble tolerance for wildlife damage and negative attitude towards National Parks (NPs) can crippled conservation efforts. Despite the report of different forms of conflict experienced by the locals around KLNP, results on the attitude and perception statements revealed that the mean score for the continuous conservation of wildlife resources in the area was high Table 5 and Table 6. In addition, the summary of the mean score of the different perception and attitudinal statements indicated that respondents had either a positive perception/attitude towards conservation of wildlife resources in the park or they are neutral, irrespective of their distance to the boundary of the park. Unfavorable attitudes towards wildlife by the study respondents were very low. This is contrary to (23) who found that communities that experience more losses from wild animals are less likely to support conservation efforts in protected areas.

However, the discovery of the positive attitude towards conservation by communities around the study area is not an isolated case. This is because, (24) reported that despite the damage caused by Olive baboon on farmlands around KLNP, which include destruction of farm produce as well as other conservation induced costs, communities around KLNP had a positive view of the conservation in the park. When the sampled HH were asked to respond to those statements that have to do with the killing or poisoning of the culprit animals, a significant number of them strongly disagree with the idea Table 5 and Table 6. This indicated the high level of tolerance of wildlife activities by the locals around the park. The tolerance level recorded in this study may be linked to the outcome of the various mitigation measures adopted and the timely response to the reported cases of conflict by the park officials. It's a well-known fact that wildlife resources are protected by both local and international laws, and as such, the culprits may face the wrath of law if apprehended. Therefore, the decision by the locals to live in harmony with wildlife in the study area can further be attributed to their fear of being arrested and prosecuted as highlighted by the majority of the group discussants. This was further reaffirmed by (25) who reported that majority of communities around the KLNP are aware of the laws guiding the park. Some interviewees reported that part of the reason why they do not want to kill animals when sighted in their farms was that sometimes the park rangers traced the sound of gun shorts and later apprehend the culprits. This was further confirmed during field work.

The locals' enthusiastic views about wildlife may further be linked to the perceived economic benefits derived from the park. This was corroborated with the information obtained during focus group discussion, where majority said they have been compensated for the loss of crops and livestock. In a related development, interaction with the park staff revealed that some staff attributed the positivity of the surrounding communities towards wildlife resources in the park to the tangible benefits derived from the park. This is in consonance with researches conducted in other part of the world. For example, (26) reported that despite HWC in Nepal's Chitwan National Park, the locals associated income earned from tourism as the likely reason why they expressed a more favorable attitude towards conservation of tigers in the park. Based on the report by (27) the positive attitude of the local communities around KLNP was attributed to the financial benefits they derived from tourism and employment opportunities with protected areas. According to (28), people are more likely to support the presence of conservation areas if benefits gained from them off set the associated cost. However, (29) indicates that locals' attitudes toward wildlife are shaped by personal experiences and beliefs, alongside economic, legal, social, and ecological factors. This means that for community-based conservation, understanding individual encounters, economic impacts, cultural beliefs, and the environmental context is crucial to foster positive attitudes and effective wildlife management practices.

Studies on people's perception and attitude make it easy to predict how certain factors will influence perception and attitude of locals towards wildlife resources and how conservation policies will influence people's attitude and perception towards effective management of wildlife resources in protected areas (30). In the present study, crop raiding, livestock depredation, income and educational status Table 5 and Table 6 were found to be significant predictors of people's perception and attitude towards wildlife (regardless of the distance of the communities to the park boundary). The likely reason why livestock depredation was found to be a significant negative factor in predicting perception and attitude may not be unconnected with the respondents' livestock holdings, as those who owned more domestic animals will be more likely to depend on income from livestock than those with few numbers of animals. And they tend to perceived potential predators as a serious threat to their survival. This is in consonance with (31) who discovered that respondents with high economic holdings of economically important livestock, perceived wild animals to be a greater threat to their survival. And coincidently, most of the group discussants claimed to have considerable number of livestock. Educational status of the sampled households also influenced their perception and attitude towards wildlife conservation in KLNP. Implying that expansion of formal and adult education as well as livelihood diversification would go a long way in improving community attitude towards wildlife. This further revealed that attitude of the locals towards conservation is better developed on the basis of education, income and crop raiding. However, this means that educating the local people around the study site about the needs and benefits of conserving wildlife resources and compensating them on the loss of crops and livestock will go a long way in gaining their participation in conservation initiatives. The results of this study further revealed that about 37% and 41% changes in the attitude of the sampled households (HH) in communities under category A (0-3km) is jointly explained by income and education. The results revealed that those variables are important factors influencing perception and attitude of locals towards wildlife. The coefficient for crop raiding shows that all things being equal, a one percent decrease in crop raiding will influence their attitude positively irrespective of their gender. This is contrary to (32) who reported that only the gender influenced attitude of locals where women showed significantly more negative attitude towards wildlife than men. This further reveals that if the current level of wildlife damage to crops is allowed to continue, it can forced the locals to have a negative attitude towards wildlife. Despite the level of HWC around KLNP, locals still have positive attitude towards wildlife Table 3 and Table 4. But during focus group discussion; many discussants cried out that more emphasis is given to care about wildlife than human welfare. Therefore, this kind of perception need to be considered by the park officials, as it would help in building more trust and establish good rapport between the park officials and local people living around the park. Despite the fact that not all forms of conflicts and socioeconomic factors influenced peoples' perception and attitude negatively, it cannot be concluded that they are not likely to influence their perception

## CONCLUSION

Local people develop positive or negative attitudes towards wildlife conservation in the study area due to different factors. The key factors influencing people's perception and attitude were mostly the risk of wildlife damage particularly crop raiding, livestock depredation, destruction of properties and socioeconomic factors such as education and income. This further revealed that perception and attitude of the locals towards wildlife conservation is better developed on the basis of education, income and prevention of crop raiding and livestock depredation. One conservation significance of this work is that majority of the sampled households were aware of conservations laws and ready to comply with the law that established the park. Also, Residents with formal education developed more positive attitude towards wildlife than the less educated people.

## ACKNOWLEDGMENTS

None.

## REFERENCES

Andrade, G. S. M., and Rhodes, J. R. (2012). Protected Areas and Local Communities: An Inevitable Partnership Toward Successful Conservation Strategies? Ecology and Society, 17(4).

Anthony, B. P., Scott, P., and Antypas, A. (2010). Sitting on the Fence? Policies and Practices in Managing Human-Wildlife Conflict in Limpopo Province, South Africa. Conservation and Society, 8(3), 225–240.

Browne-Nuñez, C., and Jonker, S. A. (2008). Attitudes Toward Wildlife and Conservation Across Africa: A Review of Survey Research. Human Dimensions of Wildlife, 13(1), 47–70. https://doi.org/10.1080/10871200701812936

Carter, N., Riley, S., Shortridge, A., Shrestha, B., and Liu, J. (2013). Spatial Assessment of Attitudes Toward Tigers in Nepal. Ambio, 43(1), 125–137. https://doi.org/10.1007/s13280-013-0421-7

Dickman, A. J. (2010). Complexities of Conflict: The Importance of Considering Social Factors for Effectively Resolving Human-Wildlife Conflict. Animal Conservation, 13(5), 458–466. https://doi.org/10.1111/j.1469-1795.2010.00368.x

Food and Agriculture Organization. (2009). Human-Wildlife Conflict in Africa: Causes, Consequences and Management Solutions. http://www.fao.org/3/i1048e/i1048e00.pdf

Idowu, O. S., Halidu, S. K., and Odebiyi, A. R. (2011). Evaluation of the Effect of Legislation on Wildlife Conservation: A Case Study of Kainji Lake National Park, Niger State, Nigeria. International Journal of Environmental Sciences, 1(7), 1609–1615.

Kideghesho, J. R., Røskaft, E., and Kaltenborn, B. P. (2007). Factors Influencing Conservation Attitudes of Local People in Western Serengeti, Tanzania. Biodiversity and Conservation, 16, 2213–2230. https://doi.org/10.1007/s10531-006-9132-8

Lamarque, F., Anderson, J., Fergusson, R., Lagrange, M., Osei-Owusu, Y., and Baker, L. (2009). Human-Wildlife Conflict in Africa: Causes, Consequences and Management Strategies (FAO Forestry Paper No. 157). Food and Agriculture Organization.

Mc Guinness, S., and Taylor, D. (2014). Farmers' Perceptions and Actions to Decrease Crop Raiding by Forest-Dwelling Primates Around a Rwandan Forest Fragment. Human Dimensions of Wildlife, 19(2), 179–190. https://doi.org/10.1080/10871209.2014.853330

McGregor, D. (2004). Traditional Ecological Knowledge and Sustainable Development: Towards Coexistence. International Development Research Centre.

Milupi, I., Mweemba, L., and Mubita, K. (2023). Environmental Education and community-Based Natural Resource Management in Zambia. In IntechOpen. https://doi.org/10.5772/intechopen.108383

Odebiyi, B. R., and Alarape, A. A. (2017, October 16–20). Human-Wildlife Conflict Around Kainji Lake National Park: Implications on Biodiversity Conservation. Paper Presented at the 6th NSCB Biodiversity Conference, 74–82.

Omonona, A. O., Olukayode, J., and Sabitu, A. R. (2017, September 17–20). Risk Perception of Some Zoonotic Diseases. Paper Presented at the Maiden Conference of the Wildlife Management Society of Nigeria (WIMSON), 183–187.

Shibia, M. G. (2010). Determinants of Attitudes and Perceptions on Resource Use and Management of Marsabit National Reserve, Kenya. Journal of Human Ecology, 30(1), 55–62. https://doi.org/10.1080/09709274.2010.11906272

Tarrant, J., Kruger, D., and du Preez, L. (2016). Do Public Attitudes Affect Conservation Effort? Using a Questionnaire-Based Survey to Assess Perceptions, Beliefs and Superstitions Associated with Frogs in South Africa. African Zoology, 51(1), 1–8. https://doi.org/10.1080/15627020.2015.1122554

Tessema, M. E., Lilieholm, R. J., Leader-Williams, N., and Ashenafi, Z. T. (2010). Community Attitudes Toward Wildlife and Protected Areas in Ethiopia. Society and Natural Resources, 23(6), 489–506. https://doi.org/10.1080/08941920903177867

Umuziranenge, G. (2019). Community Perceptions of Human-Wildlife Conflicts and the Compensation Scheme Around Nyungwe National Park (Rwanda). International Journal of Natural Resource Ecology and Management, 4(6), 188–197. https://doi.org/10.11648/j.ijnrem.20190406.15

Zaffar, M., Noor, A., Habib, B., and Gopi, G. V. (2015). Attitudes of Local People Toward Wildlife Conservation: A Case Study from the Kashmir Valley. Mountain Research and Development, 35(4), 392–400. https://doi.org/10.1659/MRD-JOURNAL-D-15-00030.1