



Assesment of ecotourism impacts on communities' livelihood around Yankari Game Reserve in Nigeria

Yakubu Janet, Yusuf Abdu Yusuf, and Hindatu Maigari Yerima

*Department of Public Administration, Faculty of Management Sciences,
Bauchi State University, Nigeria.*

Corresponding Email: janetyaks@gmail.com

Abstract

This study assessed the impacts of ecotourism on community livelihoods and potential poverty alleviation around the Yankari Game Reserve. It examines shifts in livelihood activities, challenges faced and measures taken to address negative impacts, it provided insights into the complex interplay between ecotourism, traditional practices, and conservation efforts. A qualitative research approach was used and collected data through interviews with various stakeholders such as traditional heads, reserve managers, game rangers, NGO representatives, and community members respectively. Findings revealed the transformations brought about by the establishment of the reserve and the subsequent growth of ecotourism. The study was conducted within the Yankari environs of Alkaleri local government area of Bauchi state. Qualitative data was collected from thirteen interviews and the results were thematic. The study revealed significant shifts in community livelihood activities in post-YGR creation. Increased income opportunities and improved living standards were observed, accompanied by challenges such as the need for skill development and potential displacement due to conservation efforts. The research also highlighted concerns about environmental impacts and the equitable distribution of economic benefits. The findings underscore the complexity of balancing the economic benefits of ecotourism with the preservation of traditional practices and biodiversity. Community engagement, skill development, sustainable resource management, and equitable benefit distribution emerged as key strategies for addressing the challenges associated with this transformation. The study's insights contribute to a holistic understanding of the intricate dynamics surrounding ecotourism's impact on livelihoods and conservation efforts in the Yankari region.

Keywords: Ecotourism, Community Livelihood, Poverty Alleviation, Yankari Game Reserve

1. Introduction

Ecotourism, or ecological tourism, has been a growing phenomenon since the 1950s and 1960s as the First World grew in its appreciation of nature and its vulnerability to human development and population growth (Roche *et al.*, 2014). It has become one of the fastest-growing sectors of the tourism industry, with annually growth rate of 10–15% worldwide (The Nature Conservancy, 2015). The rate of growth of ecotourism and other nature-based tourism activities seems to be the highest of all

tourism segments, estimated around 15% per year (Alamai *et al.*, 2018). Ecotourism has become an activity for revenue and environmental protection, it is a main industry which contributed to national economy (The Nature Conservancy, 2015; Tijani, 2007).

Nigeria is blessed with biodiversity and diverse natural landscapes (Bello *et al.*, 2016), it peculiarly comprises of diverse natural resources deposit in most of its thirty-six states with great potentials for recreation, relaxation and holiday which attracts tourists through the already

established environment for ecotourism. These include national parks, game reserves, strict nature reserves, forest reserves, wildlife sanctuaries, nature parks, waterfalls, rock formations, hills and highlands, caves/tunnels, springs among others. The most popular sites for ecotourism in Nigeria are the national parks. The country has seven National Parks occupying a total land area of approximately 20,156km² (about 3% of Nigeria's total land area).

However, balancing conservation goals and the needs of the local people has been a serious challenge globally (Goddy, 2020). People living around PAs have competed with and come into conflict with wild animals such as, the African elephant over resources and from loss of crops due to crop raiding and other clashes (Bello *et al.*, 2016). Even though, ecotourism was purposely meant to empower rural communities living near protected Areas, only few researches have so far been conducted to assess the impact of ecotourism on the livelihood of the affected communities especially in Yankari Game Reserve in Bauchi State of Nigeria (Adamu *et al.*, 2015; Habu *et al.*, 2017).

Several challenges, particularly, population growth, poor relations between conservation management and local people especially with the poor management of Human Wildlife Conflict, lack of compensation on loss of farm crops due to animal encroachment, poor involvement of local people in conservation activities, land power relations and unequal sharing of benefits are facing the wildlife sector globally and in the local context (Tran *et al.*, 2015). For instance most of the communities surrounding Yankari Game Reserve are characterized by insufficient infrastructure, low productivity, small scale crops farming and animal production, mounting serious environmental problems such as soil and forest degradation, increasing population pressure thereby limiting the lands around the area and wide

spread Poverty among most of rural dwellers, created an increase of pressure on available natural resources (water sources, firewood, and rangeland for grazing their livestock), most of which are found within the Protected Areas (PAs) (Tran *et al.*, 2015; Magama *et al.*, 2018).

Consequently, under the Yankari protection law, and the Endangered Species Act (2016), killing protected animals attract between three to eighteen months in jail. The restriction on the usage of land customarily owned by the locals have inevitably led to tension between the reserve and the residents as they asserted that their ancestral rights to the land (Olukususi *et al.*, 1990; Okochi *et al.*, 2016). That is the case in Yankari Game Reserve of Bauchi State Nigeria. The creation of the Parks entails a complete change in the economy of the local people who previously utilize the rich resources in the area for activities such as hunting, fishing, farming, and other economic activities but are now denied these privileges. How then do we expect them to survive? The implication is that when the privileges of these people are neglected, they may frustrate the conservation goals.

Several previous studies conducted focused more on the aspect of conservation in Yankari Game Reserve with few them conducted on the impact of ecotourism on the livelihood of the host communities (Okochi *et al.*, 2016). Accordingly, Ijeoma and Odunlami, (2013); Atuman *et al.*, (2022) recommended that future studies should explore tourism impacts on social, emotions and stress on the lives of the host communities to protect areas. Hence, the need to fill in this gap and add to the body of existing knowledge. Therefore, the purpose of this study is to assess the impact of ecotourism on the social and economic life of the affected communities in Yankari Game Reserve. The establishment of PAs is increasingly used as a good economic source for many nations and mitigate adverse effects on biodiversity especially

with the global warming bedeviling the world at large (Bode et al., 2015). Restricting access to land and valuable resources without providing users with alternatives has adverse effects on local communities, including reduction in food security and loss of livelihoods (Sharma, 2018). The exclusion of local communities, and loss of farm crops due to encroachment by wildlife animals leads to Human Wild Life conflict with dire consequences of jail term and fine.

The lives of the host community members changes when they are given the opportunity to speak and express themselves as to how they feel and what they really want from the Government to serve as an alternative to all the sources of livelihood they have lost as a result of the creation of the game reserve. A study on Game reserve conservation will expose the major stakeholders' perception on the expectations of the people and ways to bring real and sustainable change, which in turn will improve the social and economic lives of the people, it will also serve as source of information to the reserve management and NGO (WCS) who co-manage the reserve on how to attain and sustain a cordial relationship with the host communities who play a key role to the success or failure of the protected area. A study on livelihood of people living in villages in Game Reserves is significant from three perspectives namely; the theoretical and methodological and practical aspect to enable an in-depth understanding of the work. The study is aimed at informing people on the challenges faced by the host communities to protected areas. Theoretically ecotourism is a very important area due to global, economic and social importance to the life of people and preservation of the eco system. Several studies particularly, Ijeoma

and Odunlami, (2013); Atuman *et al.*, (2022); Aref and Farshid, (2010) among others assessed ecotourism from the perspective of environment and conservation as well as offered solutions on how to preserve, maintain and improve these protected areas with little concern on how to better the lives of the people around the protected area (PA).

2. Methodology

This study uses case study research design and explored within the confines of a bounded system (Creswell and Poth, 2018). This study involved the application of case study as a distinctive form of this empirical inquiry on how ecotourism impacted the social and economic lives of the local people. An overall knowledge may be an advantage for changing an existing situation Yin, (1984); Nuno and John, (2015) opined that case studies focuses better on when how and why questions being posed, the focus is on contemporary phenomenon within real-life context. Primary data were collected directly by the researcher through open and semi-structured interviews. During the data collection the researcher applied face to face interview with the interviewees who were selected from the targeted population.

Sampling

The sampled cases of comprises of three (3) Traditional Heads one from each district, one person from each of the selected Communities making 6 people, a Reserve Manager, Game Rangers, and one representative of the Non-governmental Organizations (NGOs) such as the Wild Life Conservation Society (WCS). The total number of people interviewed was thirteen (13). The units of analysis were individuals under study.

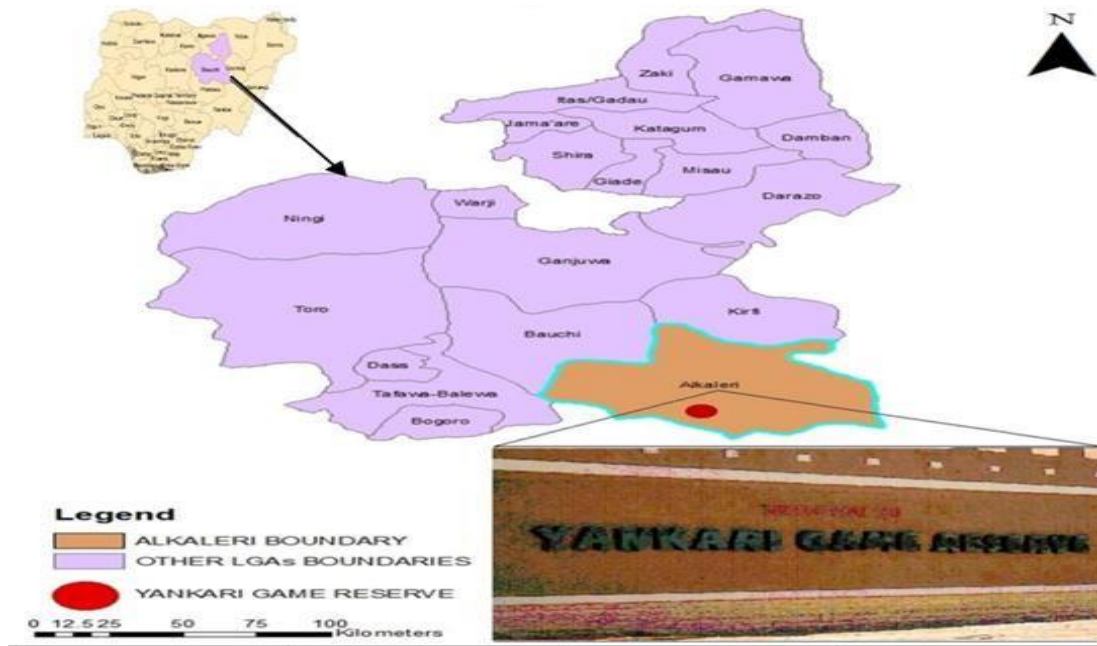


Figure 1: Map of Bauchi State Showing Alkaleri LGA and Yankari Game Reserve

Table 1: Target Population of the Study

S/N	Target Population	Informants
1	Traditional Heads	3
2	Reserve Manager	1
3	Game Ranger	2
4	NGO Representative	1
5	Community members	6
	Total	13

The above show the thirteen informants whom were interviewed the data collection ranging from three traditional heads, the manager of the game reserve, two rangers, Representative of Non-Governmental Organization, and six communities' members.

Sampling Technique

This study utilized non-probability sampling technique, it uses non randomized method to get samples and involves judgment (Nuno and St. John, 2015). Purposive and Quota Sampling techniques were applied in identifying the informants during data collection. The heterogeneous nature of the society studied and large population necessitated the researcher to employ quota sampling.

Data Collection Technique

Primary data was collected for this study; semi-structured interview design was conducted. The reason for interview is to have in-depth understanding of the interviewee's views, options and perceptions of YGR.

Method of Data Analysis

The data collected was analyzed using thematic analysis. The collected data was transcribed and reduced into categories to answer the stated research questions as well as achieve the objectives of the study. Primary data was collected through interview specifically with the target population with the information and experience interviewees such as the traditional heads, reserve management,

community members, Rangers and NGOs in the Yankari Game Reserve.

The interview was analyzed thematically using Qualitative Data Analysis Software (QDA Miner) Data was analyzed according to these steps: Firstly, organizing, assembling and arranging the data for analysis. Secondly, transcribing the interview, sorting the important data, taking notes and arranging the data into appropriate forms. Thirdly, studying the data and construction of the general information, writing down the findings and finally, organizing the interview into brief abstract into the main results.

Data Management and Ethics Consideration

In the process of conducting this study, the ethical standards as well as rules and regulations guiding research were fulfilled by the researcher. An introductory letter was collected by the researcher from the Department of public administration Bauchi state university before data gathering process. The interviewees were adequately informed on the purpose of conducting the study and confidentiality of information and identity was done.

4. Results and Discussion

This section of the study presented the results and discusses the data.

Interview process

A total of thirteen (13) interviewees were used during the conducted, these comprising of 3 traditional heads, 1 reserve manager, 2 game rangers, 1 NGO representative and 6 community members.

Results

The results were presented thematically analyzed.

Pre-existing livelihood activities of host communities before the creation of Yankari Game Reserve

Before the establishment of the Yankari Game Reserve (YGR), the host communities engaged in various livelihood activities to sustain their livelihoods and generate income. The income opportunities

open to the residents were primarily centered on traditional livelihood activities such as farming, hunting, and grazing. Farming played a significant role in providing food and subsistence for the communities, while hunting and grazing served as additional sources of income and sustenance. The living standard of the residents was generally characterized by traditional practices and relatively modest economic conditions, with limited access to external markets and modern amenities.

Present Livelihood Activities of Host Communities after the Creation of Yankari Game Reserve

With the creation of the Yankari Game Reserve, there have been notable shifts in the livelihood activities of the host communities. While some residents continued to engage in farming and traditional practices, the major economic investment and activities have shifted towards ecotourism-related ventures. The establishment of the reserve has brought about more financial opportunities to the people, as they now participate in tourism-related services, such as tour guiding, hospitality, and craft-making, catering to the needs of visitors to the reserve.

The creation of the Yankari Game Reserve has also had positive impacts on the living standards of the people. The influx of tourists has led to increased demand for goods and services, which has stimulated local economic growth. Consequently, there have been improvements in the standard of living, with some households experiencing increased income and better access to amenities. However, there are also concerns regarding the potential effects of the reserve on traditional livelihood activities. Some community members express worry that the focus on ecotourism might disrupt farming and hunting

practices, leading to a decline in these traditional activities.

Challenges facing livelihood activities of the communities due to the creation of the reserve

The establishment of the Yankari Game Reserve has introduced new challenges to the livelihood activities of the host communities. The shifted towards ecotourism has brought both opportunities and constraints. One of the major challenges faced by the communities is the need to adapt to the demands of the tourism industry, which requires skill development and training in tourism-related services. Some community members may face difficulties in transitioning from traditional livelihoods to the tourism sector.

Additionally, there are concerns about the potential displacement of people from their ancestral lands within the reserve, as conservation efforts prioritize wildlife preservation over human settlements. This can lead to conflicts and socio-economic hardships for those affected. Furthermore, the increased focus on tourism and infrastructural development has also raised environmental concerns, as some community members worry about the potential negative impacts on natural resources and ecosystems.

The creation of the Yankari Game Reserve has brought about significant changes in the livelihood activities of the host communities. While it has opened up new income opportunities through ecotourism, it has also posed challenges that need to be addressed to ensure sustainable development and poverty alleviation in the region. Balancing conservation efforts with community needs and involvement will be crucial to harnessing the full potential of ecotourism for poverty reduction and sustainable livelihoods in the Yankari communities. The creation of the Yankari Game Reserve (YGR) has had both positive and negative effects on farming, hunting,

and fishing activities in the host communities.

Firstly, Farming, the establishment of the game reserve has led to some changes in farming practices. With increased focus on conservation and wildlife protection, certain areas of land within the reserve may have been restricted from agricultural use, affecting the available farmland. Additionally, some community members might have shifted their attention from farming to participate in ecotourism-related activities, leading to a decline in agricultural productivity. However, the influx of tourists has also created new markets for locally produced agricultural products, presenting opportunities for income diversification and improved livelihoods for some farmers.

Secondly, creation of the game reserve has generally resulted in restrictions on hunting activities within the reserve boundaries. This measure is aimed at protecting wildlife populations and maintaining ecological balance. As a result, traditional hunting practices may have decreased, impacting those who relied heavily on hunting for subsistence and income. However, some individuals might have found alternative sources of income through employment in ecotourism or other sectors related to the reserve's management.

Thirdly, fishing, the impact of the reserve on fishing activities largely depends on the proximity of water bodies and fishing areas to the designated reserve areas. If fishing areas fall within the boundaries of the reserve, there might be restrictions or regulations on fishing to protect aquatic ecosystems and wildlife. This could lead to challenges for communities that heavily depend on fishing for sustenance and livelihood. Conversely, improved conservation efforts may enhance fish

populations in certain areas, benefiting local fishers.

Positive and negative impacts on finances

Positive impacts were discussed below:

Firstly, increased income opportunities: the creation of the Yankari Game Reserve has opened up new income opportunities for the host communities. Residents now engage in various ecotourism-related services, such as tour guiding, hospitality, and selling locally-made crafts, which have provided additional sources of income. Secondly, Economic growth: The influx of tourists has stimulated local economic growth. The demand for goods and services related to tourism has led to increased economic activity in the region, benefiting many businesses and individuals.

Negative impacts

Firstly, disruptions to traditional livelihoods: for some community members, the shift towards ecotourism-related activities might have disrupted their traditional livelihoods, such as farming, hunting, and fishing. This could have negative financial implications for those who struggle to adapt to the new opportunities. Secondly, uneven distribution of benefits: the positive financial impacts of the game reserve might not be evenly distributed among community members. Some individuals and businesses might benefit more than others, leading to potential disparities in wealth and income within the communities.

Measures taken to Address Negative Impacts

To address the negative impacts of the game reserve creation on farming, hunting, and fishing as well as the potential disparities in financial benefits, various measures could be implemented:

Firstly, community engagement and participation: involving local communities in decision-making processes and ensuring their active participation in ecotourism initiatives can help address concerns and ensure that their voices are heard when planning and implementing conservation

measures. Secondly, livelihood diversification: providing training and support for community members to engage in alternative livelihood activities beyond farming, hunting, and fishing can help mitigate the negative impacts and create additional income streams. Thirdly, sustainable resource management: implementing sustainable resource management practices, including regulated hunting and fishing, can help strike a balance between conservation goals and the livelihood needs of the communities. Fourthly, revenue sharing mechanisms: establishing revenue-sharing mechanisms between the game reserve authorities and the host communities can ensure that the economic benefits generated by ecotourism activities are fairly distributed among community members.

Finally, education and awareness: conducting educational programs and raising awareness about the importance of conservation and sustainable practices can foster understanding and cooperation between the communities and the game reserve management. By implementing these measures, the aim is to maximize the positive impacts of the game reserve on community finances while minimizing potential negative effects on traditional livelihoods.

Challenges faced by Rangers at Yankari Game Reserve

The role of rangers at the Yankari Game Reserve is crucial in maintaining the delicate balance between wildlife conservation and the livelihoods of host communities. However, these dedicated individuals face a multitude of challenges that threaten both their safety and the preservation of the reserve's biodiversity. This analysis delves into three significant challenges: poaching, attacks by poachers, and kidnappings.

Poaching: a threat to biodiversity and ecosystem stability

Poaching remains a persistent and critical challenge confronting the rangers at the

Yankari game reserve. The illegal hunting of wildlife, driven by the demand for exotic goods and trophy items, poses a direct threat to the reserve's diverse flora and fauna. Rangers are tasked with countering this activity, a task that necessitated constant vigilance and innovative strategies. While the Yankari Game Reserve has made strides in implementing anti-poaching measures, the covert nature of poaching operations makes it an ongoing concern. Rangers often find themselves engaged in a cat-and-mouse game with poachers, striving to protect the reserve's wildlife heritage.

Attacks by poachers

One of the gravest risk rangers' encounters is the potential for violent encounters with poachers. As rangers attempt to apprehend individuals engaged in illegal activities, they put themselves at risk of direct confrontation. Poachers, often armed and motivated by financial gain, are not hesitant to resort to violence to protect their interests. Rangers must navigate this hazardous landscape with determination, relying on their training and teamwork to mitigate potential harm. However, these confrontations can lead to injuries and even fatalities among the brave men and women who dedicate their lives to preserving the reserve's biodiversity.

Kidnapping

In recent years, an alarming trend has emerged with the increase in kidnappings of rangers. Criminal elements, seeking financial gain or leverage against conservation efforts, view rangers as potential targets. These kidnappings jeopardize the safety of the rangers themselves and also disrupt the effective operation of the reserve. Such incidents have a demoralizing impact on the entire ranger force and may deter others from joining this noble profession. Addressing this threat requires heightened security measures and also collaboration with local law enforcement and communities to track down and apprehend the perpetrators. In

conclusion, the challenges faced by rangers at the Yankari Game Reserve are numerous and multifaceted. Poaching, attacks by poachers, and kidnappings are just a few of the many hazard rangers encounter in their efforts to protect the reserve's wildlife and ecosystems. These dedicated individuals display immense courage and commitment as they navigate these challenges, often at great personal risk. Addressing these challenges necessitates a comprehensive approach involving improved anti-poaching strategies, enhanced security measures, community engagement, and the allocation of necessary resources to ensure the safety of both rangers and the invaluable natural heritage they strive to protect.

The establishment of the Yankari Game Reserve (YGR) has brought about significant changes in the livelihood activities of the host communities. Before the creation of the reserve, these communities primarily engaged in traditional activities such as farming, hunting, and grazing for their sustenance and income (Budnukaeku and Hygenus, 2021). Farming played a pivotal role in providing food security, while hunting and grazing supplemented their livelihoods. The living standards were characterized by modest economic conditions and limited access to external markets and modern amenities. However, after the creation of the Yankari game reserve, there have been notable shifts in the livelihood activities of the host communities. While some individuals continue to practice traditional activities, the primary economic focus has shifted towards ecotourism-related ventures. This shift has created new income opportunities, as residents engage in services like tour guiding, hospitality, and craft-making for tourists visiting the reserve. This has led to economic growth and improvements in living standards, with increased access to amenities and higher incomes. Similar trends were observed by (Gureng and Seeland, 2019) in the Annapurna Conservation area of Nepal

where tourism provided various opportunities to the stakeholders from local residents to national government in the Country.

The study has revealed that transition to ecotourism, while positive, has also introduced several challenges to the communities' livelihoods as previously observed (Aref & Harshid, 2010). The demand for tourism-related skills and services necessitates training and skill development. This shift might be challenging for some community members who are accustomed to traditional activities. Moreover, conservation efforts prioritizing wildlife preservation over human settlements raise concerns about displacement and socio-economic hardships for affected individuals (Budnukaeku & Hygenus, 2021).

Furthermore, the shift towards ecotourism and infrastructure development has raised environmental concerns within the host communities. Worries about potential negative impacts on natural resources and ecosystems have emerged (Gureng and Seeland, 2019). It is imperative to ensure that the growth of ecotourism does not come at the expense of the environment and the long-term sustainability of the region. The findings of this study have corroborated prior study. For instance, Bajacharya *et al* (2006) study the impact of a game reserve in Tanzania the results found parallels with the positive financial impacts of ecotourism on local communities. Similar to the Yankari case, the influx of tourists led to economic growth, improved living standards, and increased income opportunities for community members through various tourism-related activities.

However, the challenges faced by the Yankari communities are consistent with those faced by other regions embracing ecotourism. A study by Tarimo and Osumenya (2020) emphasized the importance of balancing conservation efforts and community involvement to

address potential conflicts and ensure the sustainability of both ecological and economic systems. To address the challenges posed by the creation of the Yankari game reserve, measures have been suggested. Firstly, community engagement and participation in decision-making processes are crucial to ensure that the interests and concerns of local residents are taken into account. The concept of revenue sharing, as seen in various cases, can be an effective strategy to distribute economic benefits more equitably among community members (Damilola *et al.*, 2019). Additionally, providing education and awareness about sustainable practices can foster cooperation and understanding between the communities and reserve management. The creation of the Yankari Game Reserve has transformed the livelihood activities of host communities, introducing both opportunities and challenges. While ecotourism has brought economic growth and improved living standards, concerns about traditional practices, uneven benefit distribution, and environmental impacts need to be addressed through a combination of community engagement, sustainable resource management, and educational initiatives. These efforts are essential to ensure that the Yankari communities can harness the potential of ecotourism for poverty reduction and sustainable development while preserving their cultural and natural heritage.

The establishment of the Yankari Game Reserve has introduced new challenges to the livelihood activities of the host communities. The shift towards ecotourism has both positive and negative consequences. Challenges include adapting to tourism industry demands, potential displacement due to conservation efforts, and environmental concerns related to infrastructural development.

Adapting to the demands of the tourism sector requires skill development and training. Some community members may

struggle with transitioning from traditional livelihoods to tourism-related activities. Additionally, conservation efforts prioritizing wildlife preservation might lead to conflicts and hardships for those displaced from their ancestral lands within the reserve. Furthermore, the increased focus on tourism and infrastructure could potentially harm natural resources and ecosystems, affecting the long-term sustainability of the communities' livelihoods. The creation of the Yankari Game Reserve has brought about significant changes to the livelihood activities of the host communities. While ecotourism has opened up new income opportunities, challenges related to livelihood adaptation, displacement, and environmental concerns must be addressed to ensure sustainable development and poverty reduction in the region. Balancing conservation efforts with community involvement is crucial for harnessing

The thematic analysis of challenges faced by rangers at the Yankari Game Reserve highlights the complex and multifaceted nature of their responsibilities. As guardians of biodiversity and ecosystems, rangers play a vital role in maintaining the delicate balance between wildlife conservation and human activities. However, they encounter significant challenges, including poaching, attacks by poachers, and kidnappings, which jeopardize their safety and the successful management of the reserve. The persistent issue of poaching within the Yankari game reserve underscores the urgent need for effective anti-poaching measures. The illegal hunting of wildlife for profit remains a leading cause of species decline and habitat degradation (Duffy, 2010). Despite efforts to curb poaching through patrols and technological advancements, the covert nature of these activities presents a formidable challenge for rangers (Leader-Williams and Albon, 1988). The demand for exotic goods, such as ivory and animal parts, drives poaching, perpetuating a cycle

of environmental degradation (Challender and Macmillan, 2014). Rangers must be equipped with adequate resources and support to combat poaching effectively.

The danger rangers are facing becomes pronounced when confronting armed poachers. These confrontations not only endanger the lives of rangers but also highlight the violent nature of the illegal wildlife trade (Duffy *et al.*, 2015). Violent encounters underscore the urgency of strengthening law enforcement cooperation to hold poachers accountable (Lindsey *et al.*, 2013). Rangers' safety is further compromised by limited access to advanced training and protective equipment (Damilola *et al.*, 2019). Collaborative efforts between conservation organizations and law enforcement agencies are critical to minimizing the risk of armed encounters and ensuring ranger safety. Recent incidents of ranger kidnappings have emerged as a concerning trend within the conservation landscape. Kidnappings not only place rangers' lives at risk but also disrupt the operational efficacy of protected areas (Warchol *et al.*, 2019). The motivations behind these kidnappings are varied, ranging from financial gains to thwarting conservation efforts (Murphy, 2017). The emergence of kidnapping threats underscores the need for comprehensive security protocols that address the safety of rangers both in the field and within reserve premises (Lepp *et al.*, 2018). Collaborative efforts between conservation organizations, local law enforcement, and communities are essential to prevent and respond to such incidents (Rosenberg and Piquero, 2016).

5. Conclusion

The establishment of the Yankari Game Reserve (YGR) has brought about significant transformations in the livelihood activities of the host communities. Prior to its creation, these communities were primarily engaged in traditional practices such as farming, hunting, and grazing. With the emergence of the reserve, there has been



a notable shift towards ecotourism-related ventures, providing new income opportunities and enhancing living standards. However, this transition has presented challenges, including the need for skill development, potential displacement, and environmental concerns. Comparisons with similar findings in other regions underscore the importance of balancing conservation with community involvement to ensure sustainable development.

Acknowledgements

We wish to acknowledge the support of management of Yankari Game Reserves, Wildlife Conservation Society and the Community leaders.

Competing Interests

The authors wish to declare no competing interest to the study.

Author's Contributions

Authors may use the following wordings for this section: First Author designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Second Author managed the analyses of the study and supervised the manuscript write up. The third author also assisted in the research design and literature searches. All authors read and approved the final manuscript.

References

- Adamu, A., Yacob, M., Radam, A., Hashim, R., and Adam, S. (2015). Economic Valuation of ecotourism resources in Yankari Game Reserve, Bauchi Nigeria. *International Conference on Environmental Forensics*, 30(2015); 139-144.
- Alamai, M. M., Hussaini, M. U., and Fatima, A. L. (2018). Tourism and the Economy of Nigeria: A synthesis of its contributions to GDP from 2005-2016. *Advances in Social Sciences Research Journal*, 5(11). <https://doi.org/10.14738/assrj.511.5537>

- Aref, F., Gill, S. S., and Farshid, A. (2010). Tourism development in local communities: As a community development approach. *Journal of American Science*, 6, 155-161.
- Atuman, Y. J., Kudi, C. A., Abdu, P. A., Okubanjo, O. O., Wungak, Y., Ularamu, H. G., and Abubakar, A. (2022). Serological evidence of antibodies to rift valley fever virus in wild and domestic animals in Bauchi State, Nigeria. *Veterinary Medicine International*.
- Bajracharya, S. B., Furley, P. A., and Newton, A. C. (2006). Impacts of community-based conservation on local communities in the Annapurna Conservation Area, Nepal. *Biodiversity and Conservation*, 15, 2765-2786
- Bello, F. G., Lovelock, B., and Carr, N. (2016). Enhancing community participation in tourism planning associated with protected areas in developing countries: Lessons from Malawi. *Tourism and Hospitality Research*, 8(3), 309-320.
- Budnukaeku, A. C., and Hyginus, O. (2021). Environmental laws and management agencies in Nigeria what hope for desecrated landscape? *Biodiversity International Journal*, 5(1), 1-6.
- Creswell, J. W., and Poth, C. N. (2018). *Qualitative Inquiry and Research Design: Choosing among Five Approaches* (4th ed.). SAGE Publications, Inc.
- Damilola, A. O., Luiselli, L., Kalejaiye, O. O., and Akani, G. C. (2019). Environmental threats to a biodiversity hotspot: A case study of a protected area in Nigeria. *Sustainability*, 11(22), 6271.
- Duffy, R. (2010). War, by conservation. Biology and ideology in the campaign to save elephants in South Africa. *Geoforum*, 41(2), 242-253.



- Duffy, R., St John, F. A., Büscher, B., and Brockington, D. (2015). Toward a new understanding of the links between poverty and illegal wildlife hunting. *Conservation Biology*, 29(2), 521-530.
- Goddy, N. N. (2020). Socio-Economic Impacts of Tourism Development on the Rural Communities in Ogoni Region Rivers State. *International Journal of Innovative Studies in Humanities and Natural Sciences*, 8(2), 30-40.
- Gurung, J., and Seeland, K. (2019). Tourism and protected areas: An assessment of challenges and issues in the Annapurna Conservation Area, Nepal. *Geographical Journal of Tourism and Geosites*, 26(1), 155-168.
- Habu, A., and Mohammed, N. (2017). Threats to Biodiversity Conservation in Yankari Game Reserve Bauchi State Nigeria. *International Journal of Innovative Research in Advanced Studies*, 4(11), 2394-4404.
- Ijeoma, H. M., and Odunlami, S. S. (2013). The politics of wildlife resource management in Yankari Wildlife Park: Implications on Biodiversity, conservation and ecotourism management. *International Journal of Safety and Security in Tourism*, 4, 36-50.
- Kopnina, A. H., Muhammad, N. Z., and Olaleru. (2022). Exploring attitudes to biodiversity conservation and Half-Earth vision in Nigeria: A preliminary study of community attitudes to conservation in Yankari Game Reserve. *Biological Conservation*, 272, 109645.
- Lepp, A., Holland, S. M., Smith, S. L., and Schnell, S. (2018). Understanding the relationship between national park rangers and poaching. *Journal of Travel Research*, 57(6), 723-735.
- Lindsey, P. A., Alexander, R., Frank, L., Mathieson, A., and Romanach, S. (2013). Potential of trophy hunting to create incentives for wildlife conservation in Africa where alternative wildlife-based land uses may not be viable. *Animal Conservation*, 16(4), 438-449.
- Magama, Y. A., Babagana, M., Usman, A. U., Gujja, A. A., Adamu, A., and Karachi, A. E. (2018). Assessment of Wildlife Species Mostly Involved in Human-Wildlife Conflict around Yankari Game Reserve, Bauchi State, Nigeria. *International Journal of Contemporary Research and Review*, 9(09), 20262-20277.
- Murphy, K. (2017). *Kidnapping*. New York University Press.
- Nuno, A., and St. John, F. A. (2015). How to ask sensitive questions in conservation: A review of specialized questioning techniques. *Biological Conservation*, 189, 5-15.
- Ogbonnaya, O. (1999). *Vanishing Legacy, in our Continent Africa*. Centre for Environ Research Sustain Ecosyst.
- Okochi, A. E., Tee, T., and Egwumah, P. O. (2016). Benefits of Yankari Game Reserve to its Host Communities. *IOSR Journal of Agriculture and Veterinary Science*, 09, 04-08.
- Olokesusi, F. (1990). Assessment of the Yankari Game Reserve, Nigeria: Problems and prospects. *Bufferworth Heinemann, U.K.* pp. 153-163.
- Roche, C., and Wallington, B. (2014). What is ecotourism? Retrieved on 10th of January, 2023.
- Rosenberg, M. S., and Piquero, A. R. (2016). The role of theory in mixed-methods research: A mixed-methods investigation. *Journal of Criminal Justice Education*, 27(2), 142-161.



- Sharma, A., Paudel, G., Shrestha, T. K., and Tripathi, S. (2018). Ecotourism in Gaurishankar conservation area: Source of income, satisfaction and perception of local people. *International Journal of Research in Tourism and Hospitality*, 4(3), 8-13.
- Tijani, O. N. (2007). Evaluation of Community-Based Conservation Policy in Old-Oyo National Park. PhD Thesis, Department of Geography, Bayero University, Kano.
- Tran, D., Nomura, H., and Yabe, M. (2015). Tourists Preferences toward Ecotourism Development and Sustainable Biodiversity Conservation in Protected Areas of Vietnam - The Case of Phu My Protected Area. *Journal of Agricultural Science*, 7.
- Yin, R. K. (1984). *Case Study Research Design and Methods*. Sage Publications.