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ASSESSMENT OF ECOTOURISM RESOURCES DEPLETION RATES ON YANKARI GAME RESERVE ALKALERI LOCAL GOVERNMENT AREAS OF BAUCHI STATE, NIGERIA, FROM 2016-2021

Dung Anthony Fidelis[1], Enete, I. C.[2], Ali Saidu Ali[3], Gowon Jana Patience[4], James Adams Yusuf[5], Adjarho Safe Dennis[6]

[1]Nnamdi Azikiwe University, Awka, Nigeria, Email: dadungdung@gmail.com, Tel: 07060928651

[2]Nnamdi Azikiwe University, Awka, Nigeria, Email: ifeanyienete@yahoo.co.uk, Tel: 08037127867

[3]Allat Biz Concept Nigeria Ltd, Email: coolalli810@gmail.com, Tel: 08069035260

[4]Intelivision Technologies Limited, Lekki, Lagos State, Nigeria, Email: gowonjana@gmail.com, Tel: 09073165351

[5]Nigeria Customs Service, Email: jamesyusuf271@gmail.com, Tel: 08135461046

[6]Paul B. Construction Company Nigeria Limited, Email: safedennis360@gmail.com, Tel: 08168492558

Corresponding Author: Dung Anthony Fidelis; Nnamdi Azikiwe University, Awka, Nigeria, Email: dadungdung@gmail.com, Tel: 07060928651

Abstract

This study investigated issues of management challenging ecotourism growth and ecotourism resource loss levels in Yankari Game Reserve, Nigeria. The mixed-methods study employed a blend of observation in the field and conduct of structured questionnaires among prominent stakeholder groups. Stratified random sampling methods were employed to give representative coverage, and 400 respondents sample size were ascertained through Taro Yamane formula applications. Additionally, data relating to ecotourism resource loss between 2016 and 2021 were ascertained through satellite imagery and past data obtained through Google Earth Pro. The findings revealed extensive and unceasing removal of ecotourism resources of the reserve over the studied period. The study further identified critical issues of poor management that are challenging sustainable growth of ecotourism in the reserve. Based on comparison of like reserves in Nigeria and globally, the study provided policy recommendations and institutional arrangements that were meant to enhance Yankari Game Reserve's growth and conservation to international standards of ecotourism.

Key-words: Ecotourism development, Yankari, Game Reserve, resource depletion rates.

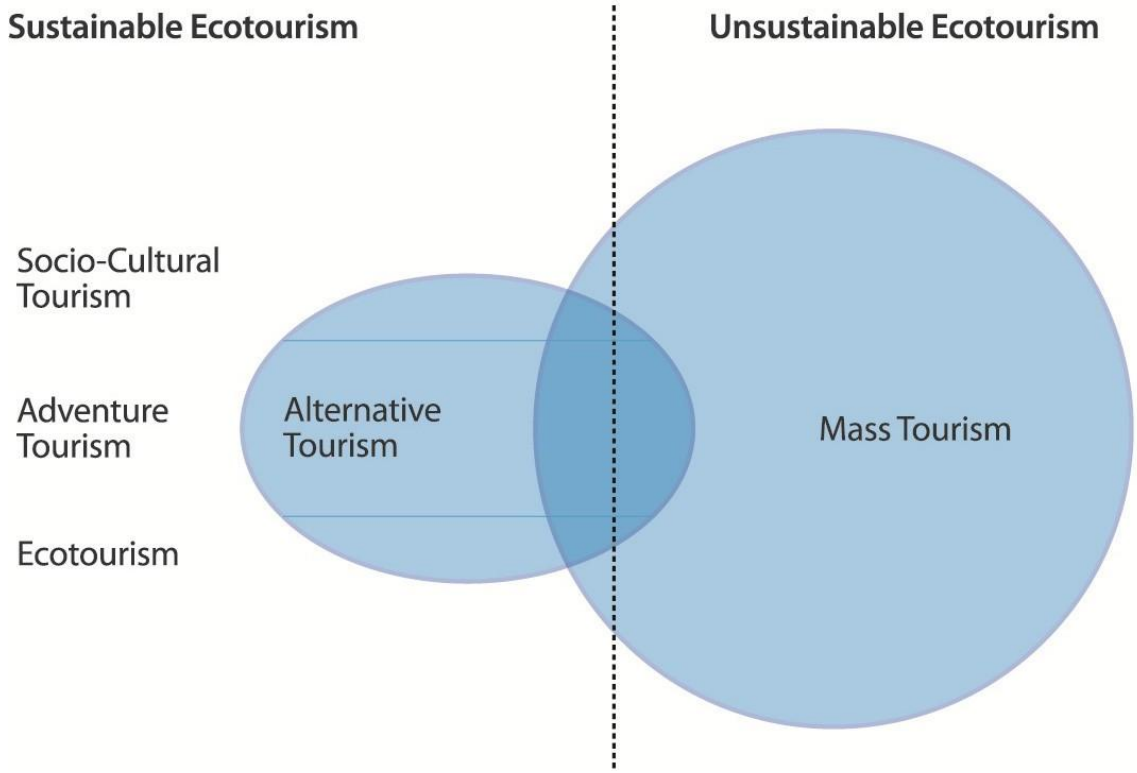
1. Introduction

One of the globe's industries that is growing fastest is tourism, and it contributes approximately 10% to world Gross Domestic Product (GDP) and generates one out of every ten jobs globally. As a world export, tourism is in a distant third place, but it is the leading sector of export for many developing states. As a sector, tourism is 40% of service exports by average in emerging market economies, compared to 30% globally (UNWTO, 2017). Ecotourism is a term specifically relating to responsible travel in comparatively undisturbed natural settings with a purpose of conserving the environment and improving local population's welfare. Ecotourism is "environmentally responsible travel and visitation to relatively undisturbed natural areas to enjoy and appreciate nature (and any concomitant cultural features, past and present) that promotes conservation, has low visitor impact, and provides for beneficially active socio-economic involvement of local populations" (IUCN, 2019). The International Ecotourism Society (TIES, 2021) defines best principles such as reducing environmental and cultural impacts, encouraging environmental awareness, offering mutual host and visitor benefit, and supporting local economies and conservation efforts.

For Africa, national parks and game reserves were initially established in remote, agriculturally unsuitable regions to preserve dwindling populations of large mammals exposed to over-hunting and disease (Lockwood et al., 2016). With time, their purpose expanded, beginning in the 1930s to cover aesthetics and recreational functions, in the 1970s to preserve biodiversity, and more recently to encompass socio-economic growth. These national parks and reserves are thus conceptualized as both wilderness and visitor attractions, attempting to balance ecological protection and use by humankind. The Yankari Game Reserve in Nigeria is a typical example of such a model of ecotourism. The reserve is now facing serious challenges, particularly degradation and loss of natural resources such as water bodies as a result of rising tourism pressures. The trend is compromising the long-term sustainability and environmental integrity of the reserve**.**

As illustrated in Figure 1, sustainable-ecotourism is not very distinctly differentiated, indicating that sustainable and unsustainable lines are not always strictly delineated (Eriksson, 2003). Ecotourism is a subset of overall sustainable types of tourism, which in turn are classified as a dichotomous classification: mass tourism and alternative tourism (Weaver, 2018). Mass tourism is more mainstream and embodies short-run economics under free market systems with frequent compromises over environmental and socio-cultural sustainability concerns. However, alternative tourism like ecotourism emphasizes more responsible tourism methods, environmental preservation, and cultural sensitization. The contrasts between mass tourism and ecotourism are further illustrated in Figure 1.

Ecotourism has been variously defined. Boo (2020) defines it as traveling to relatively undisturbed or uncontaminated natural environments with a clear purpose to study, observe, and appreciate the natural scenery, wildlife, and any cultural expressions past and present that are contained there. This definition emphasizes a scientific, aesthetic, or philosophical experience of nature, not sheer recreational travel. Similarly, Eagles (2020) defines ecotourism as "travel for the discovery of and learning about wild natural environments," and emphasizes its learning and conservation-serving objectives.



Conceptual model of sustainable eco-tourism development Source:(Erikson, 2003)

Security and Ecotourism Management

Security is a pillar of responsible tourism stewardship and entails protection of workers from zoonosis and onslaught by wild animals, protection of tourists, and protection of ecotourism locations and biodiversity against settlement and environmental catastrophes. The destruction of national parks by wildfire or flood might seriously undermine both their environmental and touristic values. For instance, flood inundation of wildlife parks might destroy fauna and alter landscapes and discourage tourist visits (Ijeomah & Aiyeloja, 2011). The example that occurred as a result of the Indian Ocean tsunami presented a similar trend when Sri Lanka lost approximately two million tourism sector jobs as a result of a huge decline in tourist arrivals (Ashley, 2021).

Climate change is a growing challenge to ecotourism globally, including in Nigeria. To combat it, international instruments such as Montreal Protocol (1987), UNFCCC (1991), Kyoto Protocol (1997), Copenhagen Conference (2010), and Cancún Conference (2013) have formulated mitigation measures. Ecotourism builds climate resilience through reduced dependency on consumptive use of natural resources and promoting regeneration of forests. Ecotourism offers local peoples financial incentives through alternative livelihoods such as eco-guiding, camel rides, provision of foods, and vocational training (Odjugo, 2022).

Sustainable Development and Nigerian Tourism

Nigeria is rich in natural and material resources but lacks developed tourism. Interestingly enough, those such as Canada, the UK, New Zealand, and the UAE have capitalized on tourism as a source of economic transformation (Hall & Jenkins, 2023; Sharpley, 2020; Vanegas & Croes, 2023). Rural socio-economic challenges are redressed with tourism that serves as a poverty alleviation tool and sustainable growth stimulator (Olorunfemi & Raheem, 2018; Olajide & Nwogu, 2022). Olapade (2012) opines that many destinations thrive not just due to natural beauty but due to storytelling, infrastructures, and events that draw both local and external investments. However, Nigeria is seriously handicapped by poor infrastructures, lack of investment, and lack of attractiveness as a national destination (Ayeni, 2021). With the economy still heavily reliant on oil and gas (Akpan, 2022), tourism presents a sustainable alternative source of change and national growth.

Environmental Advantages of Ecotourism in Protected Areas

Tourism is able to fulfill a helpful role in conservation and improvement of natural environments in areas of protection. It is helpful in boosting conservation of ecologically sensitive locations through awareness and additional revenue that is used to safeguard such locations. In Mombasa's Halle Park, tourism-led rehabilitation has transformed a hitherto degraded area to a lively ecological reserve. Furthermore, tourism is used to preserve historical structures located in locations of protection. A prominent example is that of Tree-Top Lodge in Aberdares National Park, Kenya, a historical landmark to Britain, whose financial sustainability is guaranteed through ecotourism earnings. Tourism also enhances visual and aesthetic attractiveness of preserved environments. Projects such as landscaping, plantation of trees, and improvement of drainage are normally carried out to promote a sustainable and more scenic visitor experience (Eagles et al., 2012). The developments not only enhance the tourist experience but are also employed in restoring and maintaining ecological systems.

Environmental Issues Related to Ecotourism Development

Although ecotourism is beneficial, it is accompanied by serious environmental effects. Wildlife's breeding behavior and natural behavior are significantly negatively influenced, especially when mass pressures are involved. Construction activities within and around park perimeters have been observed to alter migration behaviors of animals such as wildebeests, leading to long-lasting ecological disruptions. Pollution is also a grave concern. Non-compliance with environmental law tends to result in air, water, noise, waste, and visual pollution of parks. These pollutants have a likelihood of harming ecosystems, soil, and aquatic systems, as well as disrupting aquatic organisms and fishing activities. For instance, used oils and hazardous chemicals tend to significantly affect flora and fauna (Venegas et al., 2023).

Also responsible for landscape pollution are tourism facilities, both within and around national parks and wildlife sanctuaries. These are road signs and billboards, lighting and other ancillary facilities that disrupt the natural ambience of wilderness (Perdue, 2002). While some facilities are essential to accommodate visitor needs, excessive ones compromise the very essence of natural surroundings. Noise pollution caused by aircraft, buses, vehicles, and recreational vehicles such as snowmobiles and jet skis is increasingly becoming a threat. Apart from stress and ear damage in

humans, noise pollution has been found to disrupt wildlife, causing behavior and habitat use changes. In sensitive ecosystems such as snowy areas, these disorders have a massive influence on species' natural behavioral activities (Eagles et al., 2012). Moreover, ecotourism may have a devastating impact on flora and fauna. The activities that tourists get involved in, including vegetation being trampled upon, rock and coral and artifact picking, and recreational activities without proper supervision, tend to harm fragile ecosystems. Sporting activities are especially responsible for soil erosion in densely populated areas and therefore have a negative impact upon plants and habitat stability that is important to wildlife preservation.

2. Methods

The Yankari Game Reserve is located in Bauchi State, Nigeria and is perhaps the most popular eco-destination in West Africa sub region (Olekeshi 2021). The Game Reserve is famous for its diverse large mammal birds population, springs, ethno historical and archaeology sites. The Game Reserve is one of the most important refuges in Nigeria for certain antelope species including Roan Antelope, western Hartebeest and waterbuck. The elephant population of Yankari is recognized as being among the largest in West Africa and is by far the largest district population in Nigeria.

The Game Reserve, which was established by decree 36 of 1991, is the most popular tourist attraction among Nigerians. It is one of the few places where Eco tourist are guaranteed of seeking diverse and varied wildlife species at most times of the year. Its importance as insight into how large areas of the North African Savannah use to be are crucial and increasingly unique.The Game Reserve is the premier nature tourism destination in Nigeria and plays crucial role in the development and production of tourism and ecotourism in particular in Nigeria.

Yankari Game Reserve occupies an area of about 2244sq km2. The game is centered at 9.50'N in the South – centered area of Bauchi state in North-eastern Nigeria, in the southern portion of the Sudan Savannah zone. Access to the game is gained mainly through a paved road branching off the federal high way leading to Gombe from Bauchi at Dindima village on the bank of Gongola river. The game main entrance is at Mainamaji village.

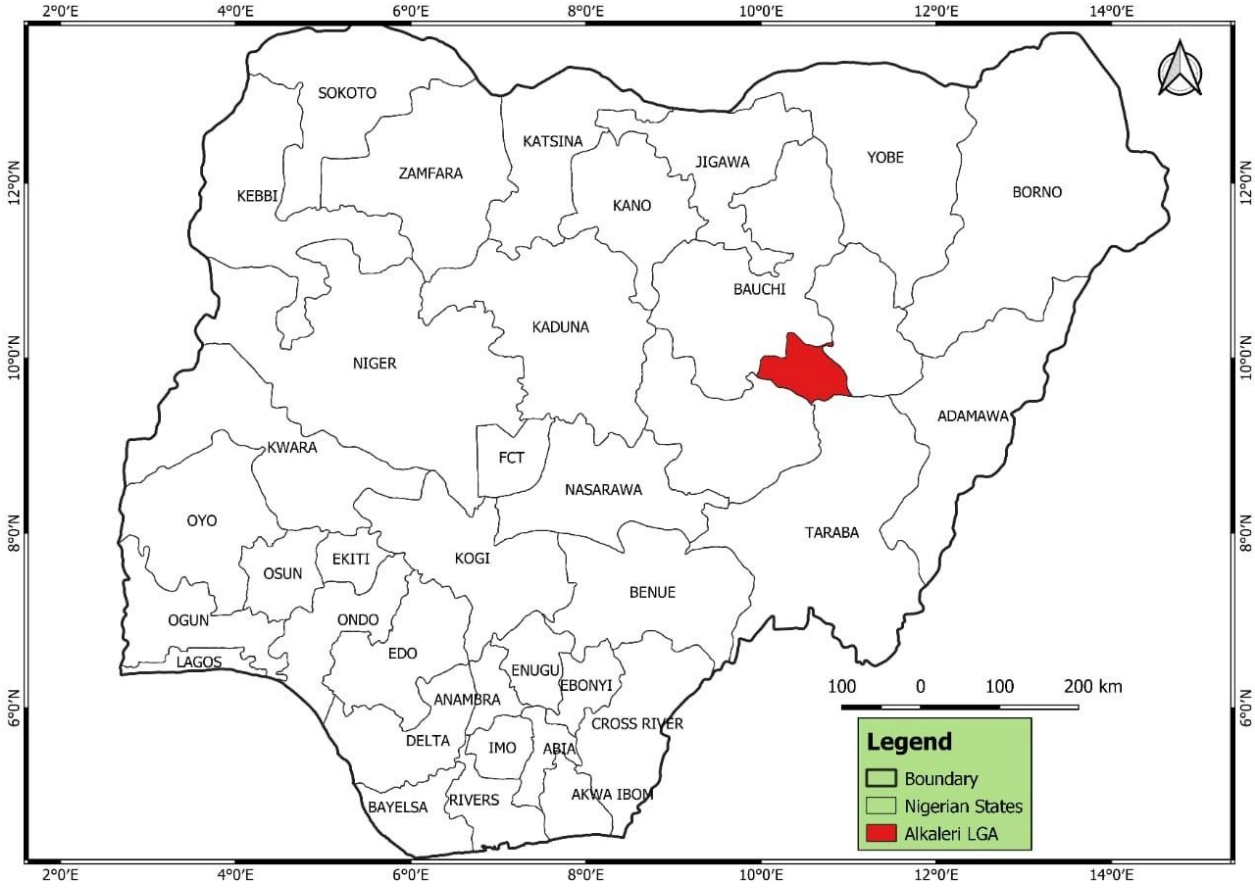


Figure 2: Map of Nigeria, Showing Bauchi State

Source: Federal Ministry of Environment

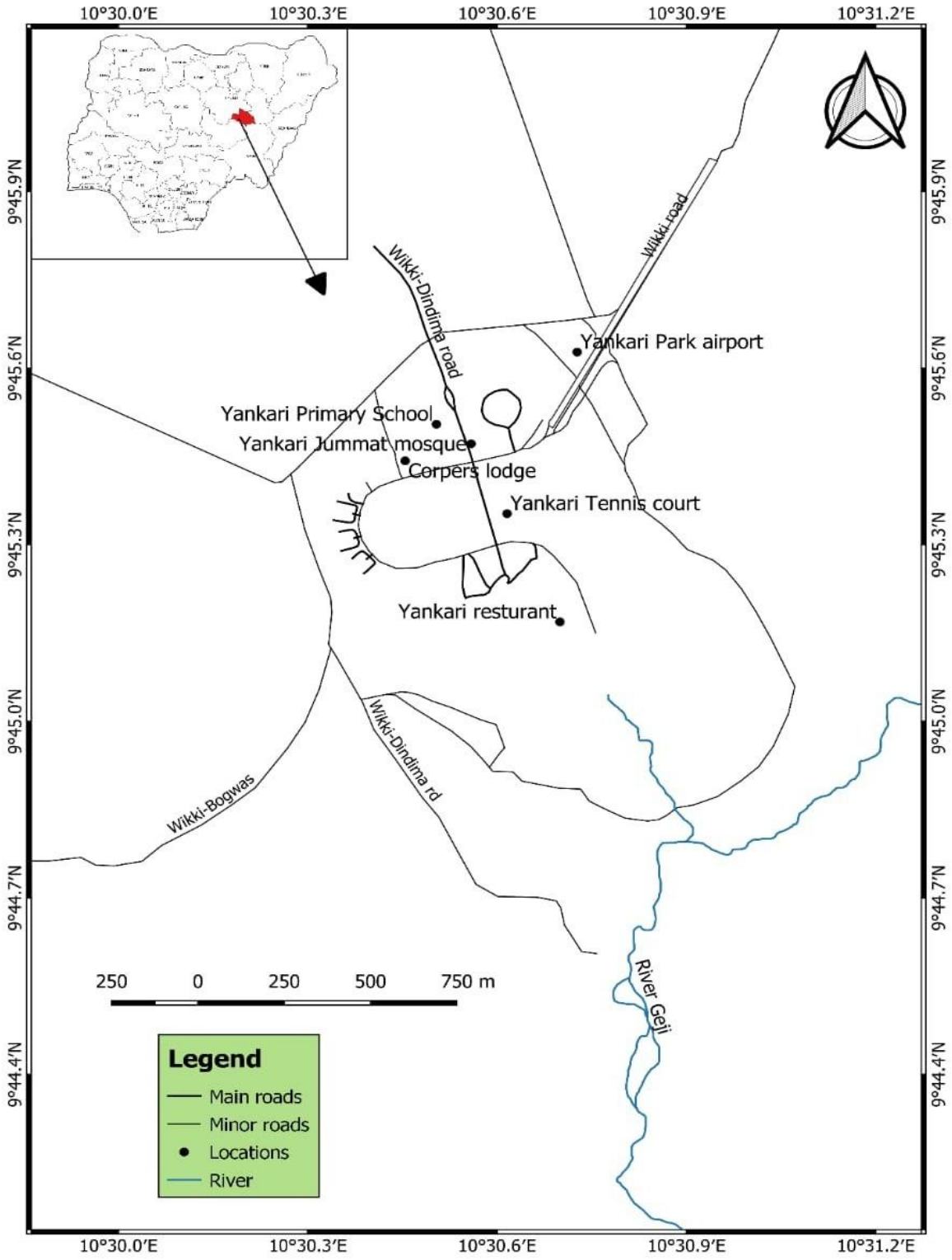


Figure 3: Map of Bauchi State, Showing Yankari Game Reserve

Source: Bauchi State Ministry of Environment

Sampling Technique

The researcher adopted the stratified random sampling technique because it enables them to obtain a sample population that best represents the entire population being studied, making sure that each subgroup of interest is represented.

Sample Size Determination

The sample size for this study was determined using the Taro Yamane (1967) formula, which is appropriate for finite population sampling. The formula is given as:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = sample size

N = population size (529,693)

e = margin of error (0.05 or 5%)

$$n = \frac{529{,}693}{1 + 529{,}693(0.05)^2} = \frac{529{,}693}{1 + 1{,}324.23} = \frac{529{,}693}{1{,}325.23} \approx 400$$

Therefore, a sample size of 400 respondents was considered adequate for the study at a 5% level of precision. A stratified random sampling technique was used to ensure that key subgroups (e.g., community members, staff, tourists) were fairly represented in the final sample.

Method of Data Collection

For the purpose of reliability and sound methodological approach, 400 structured questionnaires were developed, coded, and distributed by the researcher to relevant parties in both research sites. 249 questionnaires were distributed to host community members Gwana, Fali, and Duguri while others were distributed to other relevant stakeholders like hoteliers, researchers, members of the Alkaleri Local Government Tourism Committee, tourists/visitors, and workers of the Yankari Game Reserve.

Both primary and secondary data were gathered. The primary data covered responses made via administered questionnaires, observation through direct sight, and measurement conducted via site visits. Secondary data were obtained through archival records and corresponding literature. The questionnaire constituted two chief parts: part one collected demographic information of respondents, and part two aimed to test association through the growth of ecotourism and stakeholder engagement. All were structured as closed questions in order to create room for quantitative analysis. Out of 400 questionnaires that were given, 396 were successfully retrieved. But four were lost due to incomplete response or instrument mortality, so 392 valid responses were obtained as a final sample size to be used in analysis.

Method of Data Analysis:

The data collected throughout the study were predominantly handled through quantitative methods. The responses thus acquired using closed questions were quantified to determine respondents' opinion strength and distribution. These were summarized into frequency counts and proportions and were graphically displayed using tables and charts to allow ease of presentation, measurement, and interpretation. Specifically, demographic details and other relevant variables were presented through bar and pie charts. The use of visual aids is due to their effectiveness in portraying a percentage distribution, such that it is possible to compare different data segments. Apart from enabling comparison between different data segments, they are employed in identifying patterns and illustrating trends over time or variables and therefore contribute interpretive richness to analysis.

3. Results

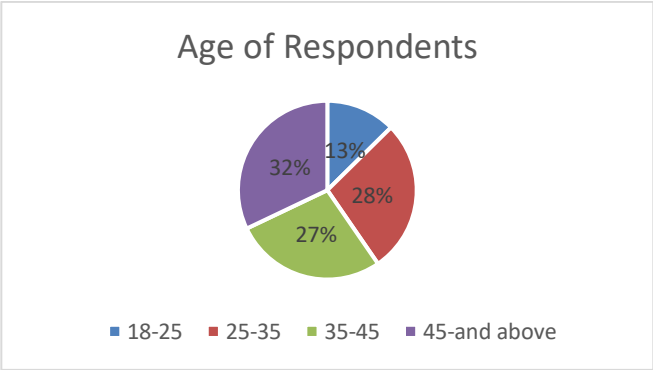


Figure 3: Age of Respondents

Figure 3, the age distribution of respondents reveals that the majority of participants fall within the older age brackets. Specifically, 127 respondents representing 32.1% are aged 45 and above, followed closely by those aged 25–35 with 110 respondents representing (27.8%) and 35–45 with 109 respondents representing (27.5%). Only 50 respondents representing 12.6% of respondents are between the ages of 18 and 25, suggesting limited participation from younger adults. This distribution indicates that the survey may have reached more mature individuals, potentially skewing perceptions toward the experiences and concerns of this demographic.

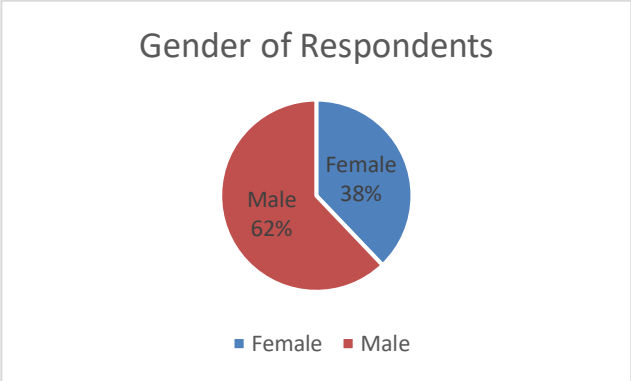


Figure 4: Gender of Respondents

From figure 4, the gender distribution among respondents shows a significant disparity, with 246 males accounting for 62.2% of participants compared to 150 females at 37.8%. This imbalance suggests that the survey may not fully capture the perspectives of both genders equally. The predominance of male voices could influence the interpretation of responses, particularly in areas such as employment, security, and economic development where gender-specific insights might be critical.

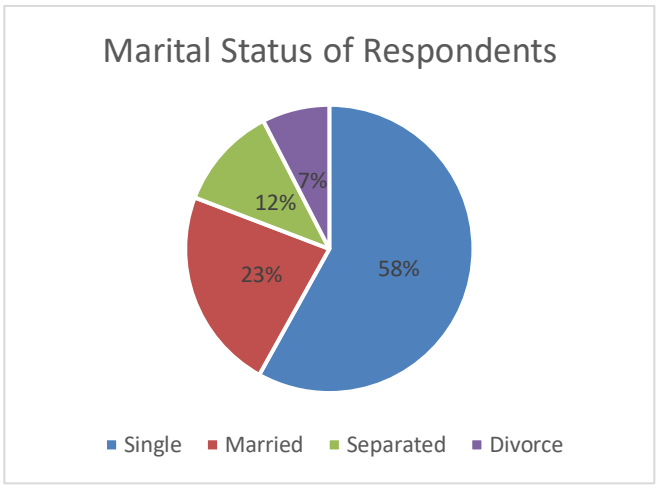


Figure 5: Marital Status of Respondents

From figure 5, a substantial 230 respondents representing 58.1% of respondents are single, indicating a youthful or transitional population segment. 90 married individuals account for 22.7%, while 46 separated and 30 divorced respondents make up 11.6% and 7.6%, respectively. This high proportion of single individuals may reflect broader social dynamics or could point to a sample drawn from urban or semi-urban settings where marriage occurs later in life. It also suggests that family-based tourism planning may need to consider diverse household structures.

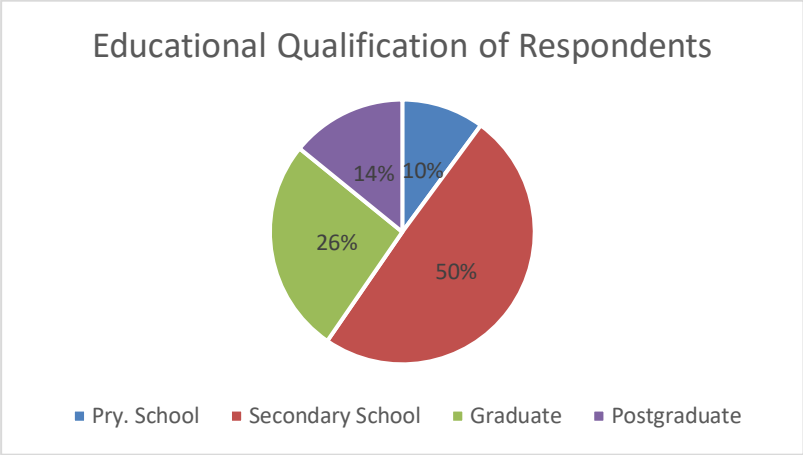


Figure 6: Educational Qualification of Respondents

Fig 6, shows that Educational background varies significantly among respondents. A majority 196 respondents representing (49.5%) have completed secondary school, while just over 104 respondents representing a quarter (26.3%) hold graduate degrees. About 56 respondents representing 14.1% have postgraduate qualifications, and only 40 respondents of 10.1% attended primary school only. These figures suggest that the survey attracted relatively well-educated individuals, which may affect how issues like policy implementation, technology adoption, and environmental awareness are perceived and addressed.

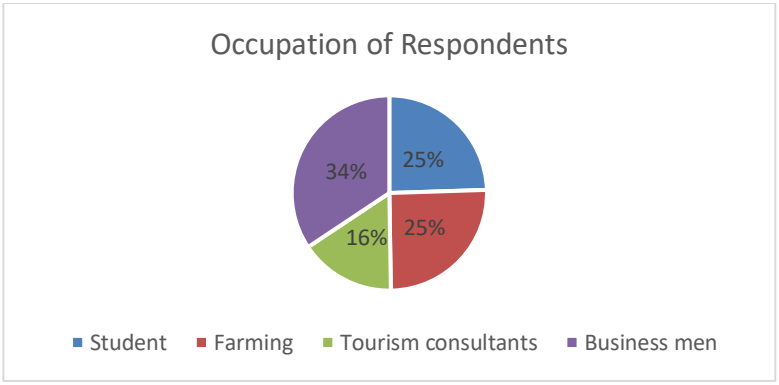


Figure 7: Occupation of Respondents

From figure 7, Respondents' occupations are quite varied, with 136 businessmen making up the largest group at 34.3%, followed by 100 engaged in farming (25.4%) and 97 students (24.4%). 63 tourism consultants accounted for 15.9% of the sample. This mix reflects a broad cross-section of local economic activity, though the relatively low number of tourism professionals raises questions about the depth of direct involvement in the tourism industry among participants.

Table 1:The Management Challenges in Yankari Game Reserve

Occupation	Respondents	Percentage
Crisis, poor planning and corruption and poor means of Transportation	90	22.7
Lack of perimeter square fence and lack of security	210	53.1
Banditry, Kidnapping and poor governance policies on tourism	51	12.8
Boko Harams and technology and information dissemination	45	11.4
Total	396	100

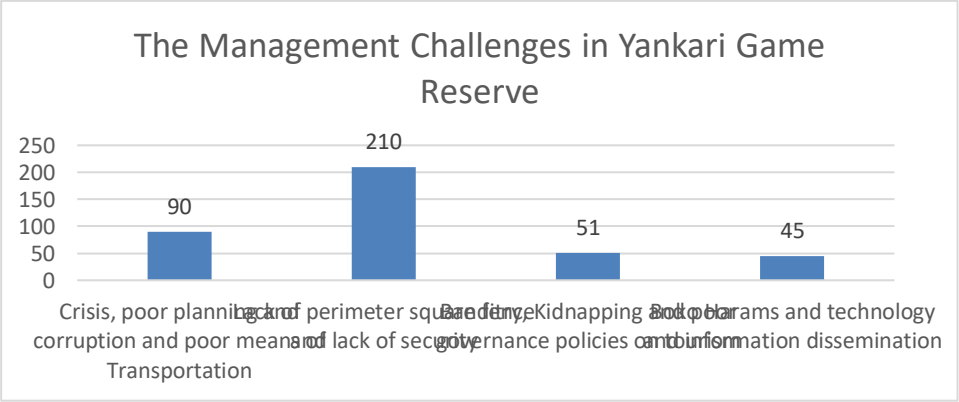


Figure 8: The Management Challenges in Yankari Game Reserve

From figure 8, 90 respondents represents 22.7% reviews Crisis, poor planning and corruption and poor means of transportation , 210 respondents represents, 53.1% reviews lack of perimeter square fence and lack of security, which also has the highest number of respondents. Therefore, there is need to construct a perimeter square fence round the park to reduce criminal activities. 45 resppndents represents 11.4% reviews Boko Harams and technology and information dissemination, which is having the lowest number of respondents. It shows that, Boko Haram

activities seems to be reducing compared to few years ago. 51 respondents represents 12.8% reviews banditry, kidnapping and poor governance on tourism.

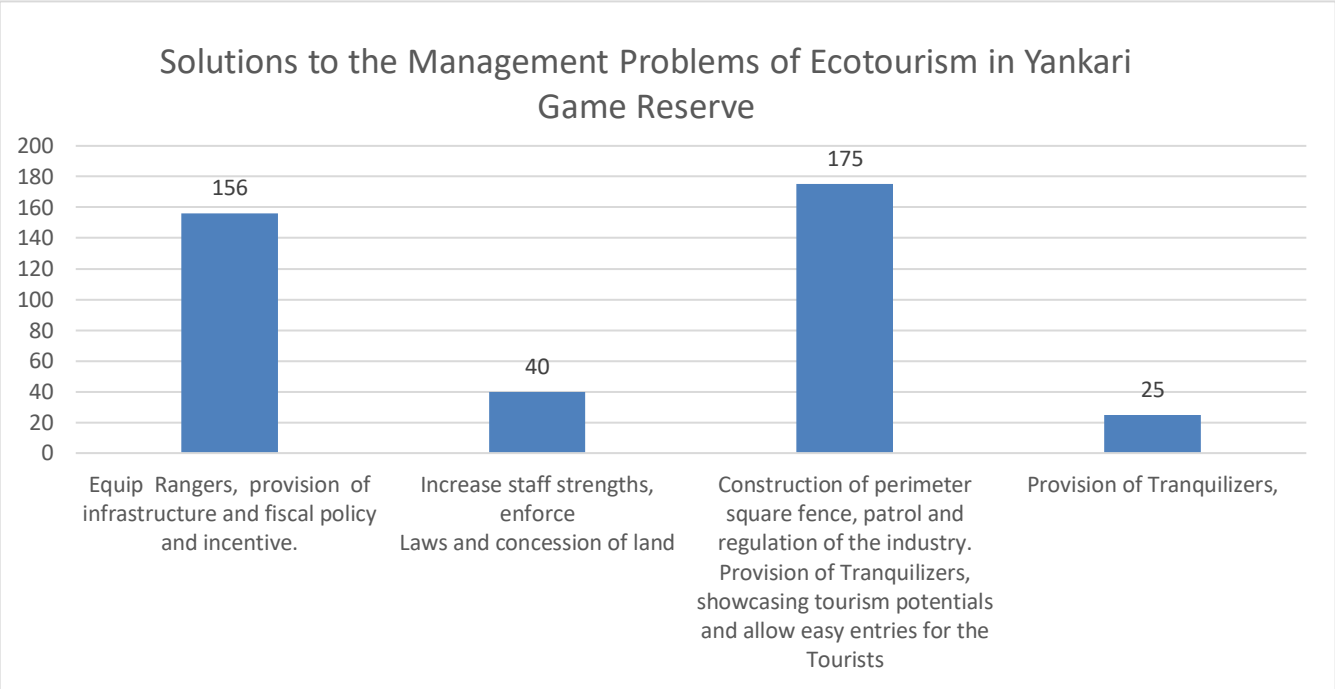
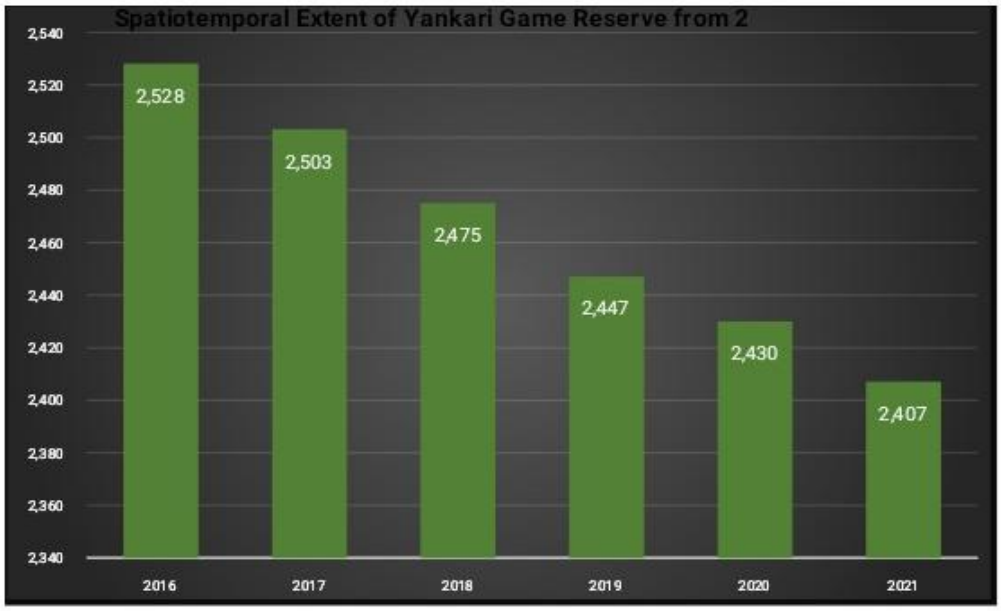


Figure 9: Solutions to the Management Problems of Ecotourism in Yankari Game Reserve

Figure 9, shows that, 156 respondents represents 39.4% reviews equip rangers, provision of infrastructure and fiscal policy and incentive, 40 respondents represents 10.1% reviews increase staff strengths, enforce laws, and concession, 175 respondents represents 44.2% reviews construction of perimeter square fence, patrol and regulation of the industry, which also has the highest number of respondents. There is need to have a perimeter fence so as to reduce crimes (hideout for bandits, cattle rustling) that take place inside the park. 25 respondents represents 6.3% reviews provision of tranquilizers, showcasing tourism potentials and allow easy entries for tourists which is also having the lowest number of respondents.

Data On Ecotourism Resources Depletion On Yankari Game Reserve

Year	Extent (sq.km.)
2016	2,528
2017	2,503
2018	2,475
2019	2,447
2020	2,430
2021	2,407



From 2016-2021

Spatiotemporal Extent of Yankari Game Reserve from 2016 to 2021



2016 Building and Reserve



2017 Building and Reserve



c

2018 Building and Reserve



2019 Building and Reserve



2020 Buildings And Reserve



2021 Building and Reserve

Between 2016 and 2021, land area coverage of Yankari Game Reserve reduced progressively. The reserve occupied a total area of around 2,528 square kilometers in 2016. This decreased to 2,503 sq. km in 2017, and a further reduction was observed in 2018, with a smaller area of 2,475 sq. km. The reduction persisted in 2019 when area covered by the reserve decreased to 2,447 sq. km., and a rate of further reduction to 2,430 sq. km was observed in 2020. The area of spatial coverage reduced further to around 2,407 sq. km by 2021. This is a total loss of 121 sq. km within six years. The reduction observed in area is most likely as a result of a combination of climatic variability and environmental degradation and anthropogenic activities.

4. **Discussion**

The Yankari Game Reserve located in Bauchi State, Nigeria, is among West Africa's top ecological marvels. Being a crucial habitat of wild species such as the African bush elephant (Loxodonta africana), olive baboons, and roan antelopes, the reserve is a conservation and environmental stability site. Its ecosystem as a savannah helps reduce erosion, ensure biodiversity, and enhance carbon sequestration, and thus it is quite significant in climate change mitigation effects. The forests and natural springs in the reserve also help conserve water and create a balanced ecosystem, and thus they have additional advantages aside from those of tourism alone. These environmental resources, when managed appropriately, also enhance sustainability in tourism activities through offering immersive and undisturbed natural encounters, which are ecotourism's backbone.

Despite its environmental and economic promise, Yankari Game Reserve is faced with increasingly escalating environmental and administration issues. Yankari's chief environmental issue is increasing pollution, noise, air, and water, primarily resulting from unregulated visitor activity, vehicle emissions, and improper waste disposal installations. The lack of proper eco-compatible installations is a major source of environmental decay. In mass tourist sites in the reserve, crowding has been observed to compromise wildlife habitat and disrupt breeding and migratory possibilities of sensitive species. Furthermore, abandonment and deterioration have made valuable historical and cultural sites in the park irrecoverable, robbing the area of applicable cultural history that could otherwise enhance the ecotourism experience (Ijeomah & Aiyeloja, 2011).

The management problems continue and hamper the proper working and development of the reserve. Chief among them is poor governance policies, lack of long-term planning, corruption, and insufficient funding. Furthermore, complete perimeter fencing is not in place, and thus the park remains vulnerable to human encroachment, poaching, and illegal grazing by pastoralists. Security issues such as banditry, kidnapping, and the ever-present threat of Boko Haram terror activities in the region have seriously reduced tourist visits, inhibited investment, and endangered conservation workers. Inadequate transportation links such as a lack of functional railways or good roads make accessibility challenging and further diminish the appeal of the reserve to both local and foreign clients (Ayeni, 2021).

Application of technology and proper information dissemination in ecotourism governance cannot be stressed further, but the park is not adequately equipped in such measures. The application of surveillance gadgets such as drones and CCTV cameras to observe illegal activities or maintain a

check over visitor safety is not prominent. Strength of staff is weak, and park rangers are not always provided with vital items, such as tranquilizers, patrol cars, and communicators, to conduct their functions appropriately. Terms of employment are bad with tardy payment of salary and poor training, and these further reduce the morale of rangers and hinder working efficiency (Odjugo, 2022).

Despite these hurdles, several remedies have been posited and could be implemented to rebuild the reserve. The issue of outfitting rangers with modern surveillance devices, like drones and CCTV cameras, would enhance security and ensure constant real-time monitoring of activities around the park. The setting up of a total perimeter fence as a deterrent against encroachment, poaching, and criminal shelters that disrupt ecologic harmony and safety of residents and wildlife is also desirable. Tougher patrol teams and equipping them with tranquilizers and portable gear would also enable them to react fast to emergencies and wildlife penetrations.

Infrastructure upgrade remains a critical component of these prospective solutions. Access roads, electricity provision, information and communication systems, and environmental accommodation facilities must be upgraded to international standards. Tax incentives and prudent fiscal policies would attract local and foreign investors to tourism, especially niche market products like water-based recreation and guided wildlife safari tours. Private partnerships with government departments might be encouraged to handle park management's non-core activities, relieving government departments of undesired bureaucracy and increasing efficiency (Sharpley, 2020).

Besides infrastructure, policy and regulatory reforms are essential to ensure accountability and sustainability in the long term. Government agencies should be proactive in licensing tourism activities around the reserve and enforcing environmental regulations. Social involvement is also essential. Engaging local farmers and hunters as park guides and park attendants would not only create employment but also help alleviate hostility and encroachment. These local residents can be park custodians if they benefit concretely from park operation. Environmental education programs emphasizing schools and religious organizations can improve local awareness and support for conservation ideology further (Ezeuduji, 2015).

Both international publicity and promotion are of equal importance. Yankari Game Reserve should be internationally promoted through international television channels such as CNN, BBC, and Al Jazeera, and internet sources such as social media, tourism forums, and travel apps. Promotions should showcase the reserve's unique cultural and biological wealth. Visa-on-arrival applications, superior airport facilities, and convenient logistics would simplify entry (Ajibade, 2020) for international tourists and investors. The boards of tourism should also consult international tour operators so that Yankari is packaged as part of broader West African ecotourism circuits (Ajibade, 2020). Other respondents have further stressed establishing local tour companies like those that exist in mature tourism economies. The companies will be intermediaries between tourists, governments, and host residents so that good communication, provision of service, and gratification are possible. Finally, promoting transparency in disbursement of funds, timely payment of employees' salaries, and standardization of maintenance schedules will assist in establishing a predictable and secure operating environment.

5. Conclusion

This study finds that Nigeria, as with many developing nations, possesses a great untapped tourism potential. The industry is, though, underdeveloped and badly in need of massive funding, policy guidance, and infrastructural support to unveil its enormous economic potentials. Sustainable tourism is a viable alternative corridor to economic diversification as global demand for sustainable tourism continues to increase. Due to ecotourism-led socio-economic growth achievements in nations like Kenya, Nigeria's tourism industry has been negatively affected by insecurity, bad governance, and weak institutions.

Globally, tourism has been robust when confronted with crises such as pandemics, recessions, and acts of terrorism, and international arrivals have crossed 900 million in 2007 and are projected to exceed 1 billion in 2010. Nigeria must now take decisive steps to gain its rightful slice of such a rich sector. Investment in attractions such as the Yankari Game Reserve offers environmental protection, additional incomes, and local community empowerment possibilities. Although developments have been slow, as a study has shown, tourism has indeed created employment, foreign inflows, and GDP growth in several Nigerian states. With determined reforms and private sector engagement, there is a prospect of the sector emerging as a flagship of sustainable development and inclusive economic transformation in Nigeria.
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6. Recommendations

1. Enhance Security Protocols: Enact strict security and safety protocols to protect tourists, workers, and wildlife in every area of tourism, and especially in conserved areas like Yankari Game Reserve.
2. Investment in Infrastructure: The government should prioritize tourism-oriented infrastructures such as roads, electricity, internet connectivity, bridges, rail, and water transport systems.
3. Foster Investment: Develop incentives to attract private and foreign investors and support untapped possibilities in ecotourism, transportation, and hotel service.
4. Go Global: Promote Yankari Game Reserve and others through international broadcast stations (e.g., CNN, BBC, Al Jazeera), social media, and partnerships.
5. Support Tour Operators: Create professional tour firms to support organized promotion and visitor engagement, by international best practices.
6. Regulate and Monitor Tourism: Appoint government agencies to monitor every sector of tourism to ensure regulation, transparency, and development.
7. Involve Local Communities: Engage host communities in decision-making, jobs, and benefit-sharing in order to limit site degradation and sustain livelihoods.
8. Environmental Education: Organize outreach programs in schools and religious organizations on environmental protection and responsibility.
9. Enhance Protection of Parks: Recruit and train more rangers, equip them with modern tools (e.g., drones, CCTV), and install perimeter fences to assist in protection against crimes and

poaching

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