

ECOTOURISM POTENTIALS FOR SUSTAINABLE CONSERVATION AT NEKEDE ZOOLOGICAL GARDEN, IMO STATE NIGERIA

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ABSTRACT

This study was carried out to determine how wildlife conservation promotes ecotourism at Nekede zoological garden. Ecotourism involves visiting natural areas like zoos in order to learn, to study, or to carry out activities environmentally friendly, that is, a tourism based on the nature experience. This is done through the effort of skilled educators and interpreters, who use a variety of techniques, methods like observation, visit to the site, interviews and focus group discussion. Data pertaining to how conservation promotes ecotourism at Nekede zoological garden were collected through in-depth interview with experienced zoo staff, observations in the zoo premises, structured questionnaires as well as review of records and files. The result showed that the highest respondents fall within the age bracket 30-39, (52%). Males (62%) were more than females (38%). Many wild animals and forest trees were identified during the study. Some identified wild animals include Grasscutter (*T. swinderianus*), Chimpanzee (*Pan troglodytes*), Lion (*Panthera leo*) and Stripped hyena (*Hyaena hyaenia*). The study reveals that the purpose for visiting the zoo include observing the animals, to know about nature, learn and for recreation. It shows that their visit to observe these wild animals promotes ecotourism. Though, there were little or no visitors in the year 2020, while the highest visitors came during the year 2019. It was recommended that the importance of ecotourism through conservation should be made a priority for first time visitors before any other form of activities can take place.

Keywords: Wildlife Conservation, Ecotourism, Nekede Zoological Garden, Tourists.

1. INTRODUCTION

Ecotourism, as an alternative tourism, involves visiting natural areas like zoos in order to learn, to study, or to carry out activities environmentally friendly, that is, a tourism based on the nature experience, which enables the economic and social development of local communities. Nekede zoological garden is one of the ex-situ conservation center mostly used for educational activities like excursions.

Conservation is an effort to maintain and use natural resources wisely (IUCN, 2010). It is an effort to ensure that, those resources will be available for future generations (Ijeomah *et al*, 2012). Hence, wildlife conservation is meant to exploit wild populations reasonably so that the resources will be available for future generations (FAO, 2008). Ex-situ conservation as an ecotourism practice is an effort to maintain and use natural resources wisely (IUCN, 2002) in an enclosed place. It is an effort to ensure that those resources will be available for future generations (Ijeomah, 2012). Hence, wildlife conservation is meant to exploit wild populations reasonably so that they will be available for future generations. According to (Aralape *et al*,

2017), the world is facing a biodiversity crisis, hence schools, teachers, and parents are being urged to prepare students to face the real-life issues they will routinely encounter in maintaining wildlife sustainably, manage the biosphere and integrate biodiversity conservation with other societal goals, (Adeola, 2017). The need for conservation awareness or education among juveniles is necessary to teach them on time about conservation. Conservation awareness is a process of disseminating information and knowledge about the sustainable use of wildlife resources and the ability to evaluate such information or knowledge for the benefit of mankind, wildlife, and the environment (Chinedu, 2008). It aims to provide learners with the opportunity to gain sensitivity to wildlife and their environment (Nchor and Asuk, 2008). According to (Sabele, 2010), it means to impart knowledge and experience to people. Conservation assessment assists staffs, students and communities to solve the problems surrounding the sustainable use of wildlife (Megan, 1999). This will help them to acquire a set of values and positive attitudes towards conservation and to obtain the skills required to identify and solve wildlife-related problems (Nwafor, 2017).

Ecotourism potentials in any society are an effective tool for sustainable conservation. Developing countries are now embracing it and including it in their economic development and conservation strategies. Ecotourism involves visiting natural areas like zoos in order to learn, to study, or to carry out activities environmentally friendly, that is, a tourism based on the nature experience, which enables the economic and social development of local communities. It focuses primarily on experiencing and learning about nature, its landscape, flora, fauna and their habitats, as well as cultural artifacts from the locality. Ecotourism potentials leads Ecotourism as an alternative tourism, involves visiting natural

Ecotourism is a tourism based on the nature experience, which enables the economic and social development of local communities, lifestyle and an integrated tourism is a type of local economic activities. Therefore, ecotourism in Nekede zoological garden was carried out in natural and cultural areas with a number of wildlife in their natural landscape. Ecotourism contributes to conservation of biodiversity; sustains the well-being of local people.

Ecotourism assists conservation in making travel decisions which can benefit conservation. seeing wildlife in their natural landscape makes for an extraordinary, once-in-a-lifetime experience, and by choosing responsible travel, tourists can play a central role in protecting wildlife and their habitats. Sustainable ecotourism is proving to be a powerful tool for stimulating local economies and empowering local people to protect wildlife, rather than resorting to short-sighted exploitations such as poaching and deforestation. Quite simply, ecotourism motivates people to ensure that wildlife remain healthy and alive.

2. MATERIALS AND METHODS

The Study Area

The study was carried out at Nekede Zoological Garden, located at Old Nekede Road, Opposite Imo Songhai farm, Nekede in Owerri, Imo state Nigeria. Its coordinate bearing is 5.47941"N, 7.02598"E. The zoological garden established in 1976 under the state Ministry of Agriculture as an animal park, the Nekede Zoological Garden which sits on 10 hectares of reserved forest, houses a variety of animals, including lions, chimpanzees, monkeys, pythons, ostriches and crocodiles, among other animals.

3. TOPOGRAPHY AND DRAINAGE

Nekede zoological garden is located in Umudibi village which is surrounded by Umugeze Umuoma, and Umualum village. It lies on the junction of the Nwoire River and the Otamiri River and the garden has low relative humidity and high rainfall. The climate is typically humid and lies within the tropical rain forest.

4. CLIMATE AND VEGETATION

The climate is typically humid and lies within the tropical rain forest ie equatorial monsoon region of Nigeria which has its highest rainfall between 1760 – 2000mm in June, July, August and September and low rainfall in January and December. The maximum temperature is about 32.4°C and minimum temperature of about 20.4°C. Vegetation of the zoological garden has a massive land mass of rain forest, which has been guided strictly against any form of encroachment.

5. METHODS OF DATA COLLECTION

Both Quantitative and Qualitative methods of data collection was applied by using the following:

Field observation was used to collect data from the site. Also in-depth interview and review of administrative records was used to collect data from the zoo. The sites were visited several times to observe the attractions, their state, facilities and conditions of the facilities. In-depth interview was conducted with both staff and tourists.

6. RESULTS

Table 1: Demographic characteristics of Respondents

Characteristics	Variables	Frequency	Percentage
Gender	Male	31	62.00
	Female	19	38.00
Age	Below 19	02	04.00
	20 -29	12	24.00
	30 -39		26
	40 -49		09
	>50		01
Religion	Christianity	47	94.00
	Muslim	03	06.00
Annual income level	<50,000	25	50.00
	50,000 -100,000	23	46.00
	101,000 -200,000	02	04.00
	201,000 -300,000	01	02.00

	>300,000	01	02.00
Marital status	Single	38	76.00
	Married	07	14.00
	Divorced	01	02.00
	Widow/widower	04	08.00
Family size	<4	14	28.00
	5 – 7	08	16.00
	8 – 10	07	14.00
	11 -13	11	22.00
	14 – 15	08	16.00
	>15	02	04.00
Level of Education	No formal education	06	12.00
	Primary education	12	24.00
	Secondary education	20	40.00
	OND/NCE	08	16.00
	HND/BSc	03	06.00
	>M.Sc	01	02.00
Nationality	Nigerian	48	96.00
	Non-Nigerian	02	04.00

7. SOME POTENTIAL ELEMENTS AND RISKS ASSOCIATED WITH ECOTOURISM AT NEKEDE ZOO

Elements	Risks from ecotourism activities
Ecosystems	<p>The construction of accommodation, visitor’s centers, infrastructure, and other services has a direct impact on the environment, from vegetation removal, animal disturbance elimination of habitats, impacts on drainage etc.</p> <p>Wildlife habitat may be significantly changed (travel routes, hunting areas, breeding areas, etc.) by all kinds of tourist development and use.</p>
Soils	Soil compaction can occur in certain well-used areas. Soil removal and erosion also occurs, and may continue after the disturbance is gone
Vegetation	Concentrated use around facilities has a negative effect on vegetation. Transportation may have direct negative impacts

	on the environment (e.g. vegetation removal, weed transmission, animal disturbance). Fire frequency may change due to tourists and park tourism management.
Water	Increased demands for fresh water. Disposal of sewage or litter in rivers, lakes or oceans. Release of oil and fuel from ships and smaller craft. Propeller-driven watercraft may affect certain aquatic plants and species
Air	Motorised transportation may cause pollution from emission of Carbon Monoxide (from plane, train, ship or automobile).
Wildlife	Hunting and fishing may change population dynamics. Hunters and fishers may demand the introduction of foreign species, and increased populations of target animals. Impacts occur on insects and small invertebrates, from effect of transportation, introduced species, etc Disturbance by visitors can occur for all species, including that are not attracting visitors. Disturbance can be of several kinds: noise, visual or harassing behavior. The impact can last beyond the time of initial contact (e.g. before heat rate returns to normal, or before birds alight, or mammals resume breeding or eating). Marine mammals may be hurt or killed by boat impacts or propeller cuts. Habituation to humans can cause changed wildlife behavior, such as approaching people for food

Table 4 below shows the names and number of wild animals at Nekede zoological garden. The highest number of wild animals in Nekede zoological garden is grass cutter (*G.swinderianus*) which is thirty-seven (37). This shows that they breed the animal very fast there and that this animal is highly prolific. The second highest number is Monitor lizard (*Veranus niloticus*) which is eight (8) in number, followed by Nile crocodile (*Crocodylus nilotica*) which is seven (7). The least wild animal is Band owl (*Tyto alba*) which is only one (1).

Table 4: List of animal species managed under intensive system

Common Names	Scientific Names	No.
Grass cutter	<i>T. swinderianus</i>	37
Chimpanzee	<i>Pan troglodytes</i>	04
Lion	<i>Panthera leo</i>	02
Stripped hyena	<i>Hyaena hyaenia</i>	03
Royal python	<i>Python sabae</i>	04
Nile crocodile	<i>Crocodylus nilotica</i>	07
Monitor lizard	<i>Veranus niloticus</i>	08
Anubis baboon	<i>Papio anubis</i>	04
Tantalus monkey	<i>Cercopithecus tantalus</i>	03
Patas monkey	<i>Erythrocebus patas</i>	04
Martial eagle	<i>Polemaetus bellicocus</i>	02
Civet cat	<i>Viverra civetta</i>	04
Tawny eagle	<i>Aquila vapax</i>	03
Bateleur eagle	<i>Terathopius ecaudatus</i>	04
Palmnut vulture	<i>Gypohirax angolensis</i>	02
Hooded vulture	<i>Neophron monachus</i>	03
Black kite	<i>Milvus migrans</i>	05
Band owl	<i>Tyto alba</i>	01
Fennec fox	<i>Fennecus zerda</i>	04

Table 5 shows the wild animals that have died but are yet to be replaced. Some of them were very attractive animals and need to be replaced for more tourists to visit the zoo for various reasons and activities.

Table 5: Dead Animal species that have not been replaced

Common Names	Scientific Names
Jackal	<i>Canis aureus</i>
Zebra	<i>Equus burchelli</i>
Rhinoceros	<i>Diceros bicornis</i>
Bush buck	<i>Trionyx triunguis</i>
Turtle	<i>Tragelaphus Spotted</i>
Leopard	<i>Panthera pardus</i>
Pionosis	<i>Platanistidae spp</i>
Black Japanese fowl	<i>Checkoslovakia</i>
Crested porcupine	<i>Hystrix cristata</i>
Brush-tailed porcupine	<i>Atheruxus africanus</i>

Table 6 represent monthly and annual tourists’ inflow at Nekede zoo for the period of five years. People came at different intervals and a lot of tourists visited the place in that year. Most striking period is that of 2020, as from March. In January and February, 2020, there are a normal number of tourists, 2193 and 2171 respectively. As from March, 2020, the tourists’ inflow reduced drastically due to lock down, caused by COVID-19. No tourists were received (000) on June and July 2020 due to lockdown. Other years (2017, 2018, 2019 and 2021) shows the normal population of tourists. The highest number of tourists occurs in December in all the years except the year 2020.

Table 6: Monthly and Annual tourists’ inflow at Nekede zoo

S/N	MONTH	YEAR			
		2017	2018	2019	2020
2021					
1	January	2675	1165	1,025	2193
1209					
2	February	1123	969	1 346	2171
2207					
3	March	1385	1115	2506	133
2939					

4 2739	April	2821	2823	1934	114	
5 3792	May	3045	3521	2554	111	
6 0847	June	1067	2351	4110	000	
7 0922	July	2471	1379	3736	000	
8 0881	August	1622	2221	3123	012	
9 2561	September	1007	2921	3074	019	
10 1773	October	2963	2961	3423	017	
11 2073	November	3131	2761	3867	004	
12 4042	December	3234	3924	4860	115	
Total		26,544	28,111	35,558	4,889	25,985

Table 6 above shows the monthly and annual tourists' inflow at Nekede zoo for the period of 5 years (1917 to 2021). The year 2019 shows the highest (35,558) in tourist visitation. This was followed by the year 2018 which have the total annual tourist as (28,111). The next was in 2017 with the total of annual tourist visit as (26,544), followed by the year 2021 which recorded (25,985). The least was in the year 2020 which recorded (4,889) annual tourist. This poor record in 2020 was due to COVID-19. The deadly COVID-19 prevented a lot of people from visiting the zoo because of general lock-down and social distancing.

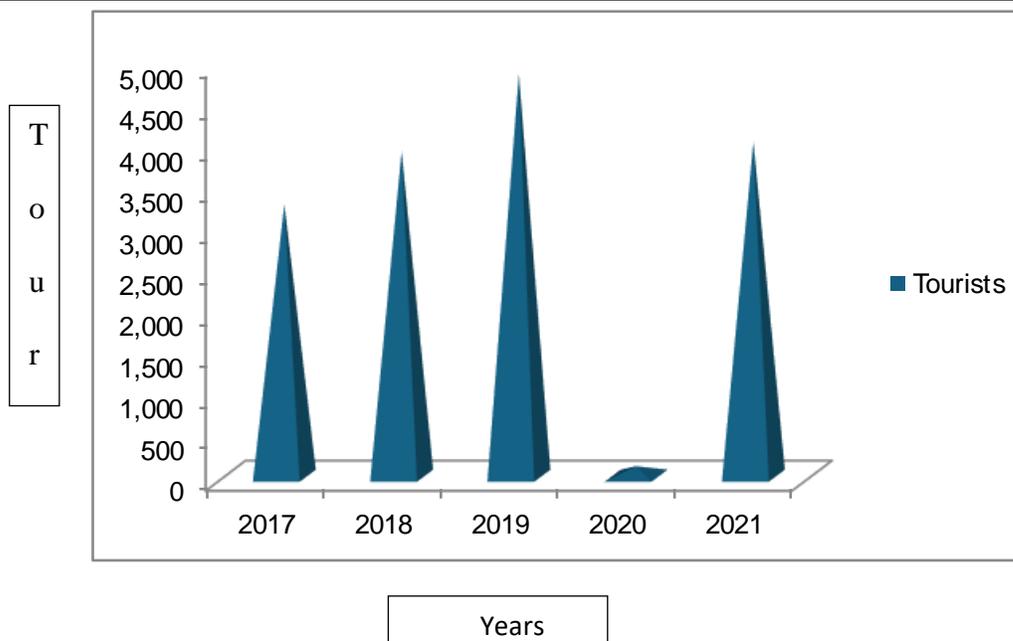


Fig.1: Chart representation of annual tourists’ inflow in December for 5 years at Nekede zoo

Fig.1 above shows the information about annual tourists’ visitation at Nekede zoo in December each year. The highest tourists visit was in 2019 (4860), followed by those of 2021(4042), then, 2018 (3924), then 2017 (3234). The least was in 2020 (115). The least number in 2020 was due to the effect of COVID-19 when lockdown did not allow tourists to visit the zoo.

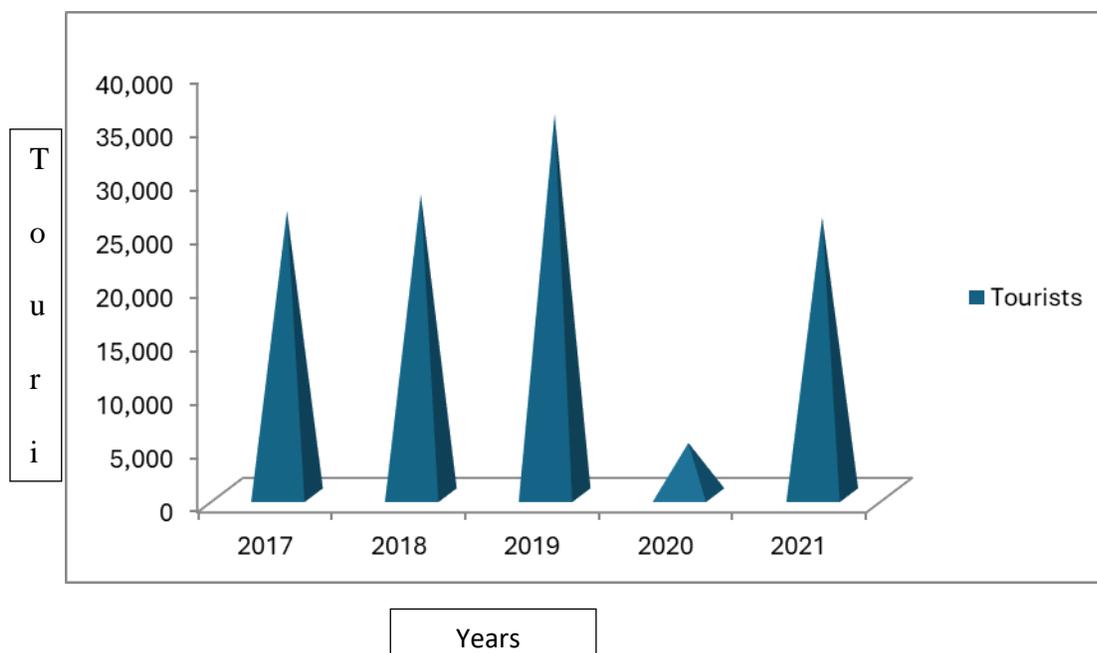


Fig.1: Chart representing the total tourists’ inflow annually for 5 years at Nekede zoo



Plate 1: Grasscutter cage



Plate 2: Baboon inside cage



Plate 3: Ostrich

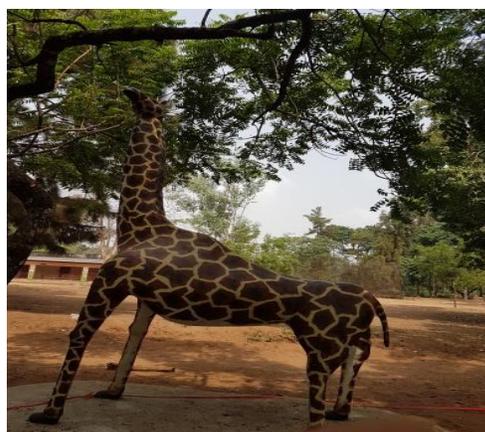


Plate 4: Giraffe monument



Plate 5: Rock python



Plate 6: Museum at Nekede zoo

Fig.2 above shows the information about the total annual tourists' visitation at Nekede zoo for 5 year. The highest tourists visit was in 2019 (35,558), followed by those of 2018 (28,111), then, 2017 (26,544), then 2021 (25,985). The least was in 2020 (4,889). The least number in 2020 was due to the effect of COVID-19 when lockdown did not allow tourists to visit the zoo.

8. CHALLENGES THAT ARE FACING ECOTOURISM AT NEKEDE ZOO

Nekede zoological garden can stand the best of time if it continuously satisfies the needs of tourist. Other zoos in Nigeria are facing similar managerial challenges, one of these challenges is high cost of animal feeds especially for carnivores. This explains why goats and birds are reared in many zoos purposely for feeding carnivores. Apart from being located along noisy road with heavy traffic, this zoo is under stocked with animals in inappropriate enclosures. So many enclosures are empty. Social animals like the primates, birds, wild cats and dogs are kept far below animal welfare standards. To continue attract tourists, modern zoo exhibits should incorporate entertainment and education in its objectives. This zoo hardly replace dead animals, thus making the zoo to be devoid of key stone species like lion (*Panthera leo*), mountain zebra (*Equus zebra*), mountain gorilla (*Gorilla beringa beringa*) and African elephant (*Loxodonta Africana*). Insufficient funding and insufficient training staff further leads to the existence of low standard mode in acquiring animals, health records and implementation management policies are problems facing Nekede zoo. Lack of adequate trained staff can make one person to do the work of five people or someone in another profession to always see the job as strange to him/her. This will reduce the moral of working as a professional in this zoo. Employment should be made according to the specialized field to enable those that study Forestry and Wildlife or Zoology to work satisfactory in the zoos.

9. CONCLUSION AND RECOMMENDATIONS

Nature based tourism, regardless of how it is defined, is now being strongly promoted at Nekede zoological garden. This work assessed how Nekede zoo promotes ecoourism for the period of five years. The result shows that the practice of ecotourism there provides opportunities for access and to open up the rural areas. It has helped in bringing many wild animals under protection, exposition, breeding, advertising and more importantly viewing.

Nevertheless, it is decided that the conservation activities have benefited the staffs, the communities and the tourists.

The inflow of tourists is not well distributed because of lockdown and COVID-19 incident. Apart from this, Nekede zoo adopts strategies, which guarantee all season tourism and continuous conservation education. It was recommended that the revenues generated from ecotourism should be used to manage and protect this site. In essence, this zoo gazette in ... has remained open to the public since ... that it was commissioned till date, with games viewed at ease from 8am to 6pm every day. Thus, before ecotourism was discovered or rather named formerly by Hector Ceballes Lascurain of Mexico in 1987, Nekede zoo had been into it and has sustained it till date. To ensure sustainability and good tourists' experience, conservation objectives must be clearly specified, targeted and monitored. Zoo facilities should be multiplied and spread at different locations to reduce pollution and destructive pressures from visitors. Dead animal species should be replaced. More animals especially the endangered species should be procured to increase the stock of the zoo. Wild animal species should be provided with mates especially the gregarious ones to ease psychological stress or tension.

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