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Assessment of Ecotourism Resources in Prof. Afolayan Wildlife Park, Ondo State, Nigeria

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Abstract
Ecotourism resources are natural and cultural features that attract visitors to an ecological-friendly destination. These resources include flora, fauna, landscapes and historic monuments, among others. Protected areas are major tourism assets for a nation, particularly for developing countries, providing sustainable benefit to the local community. This research aims to explore the ecotourism resources of Prof. Afolayan Wildlife Park and their prospects for ecotourism. Both qualitative and quantitative methods were used. *The data were obtained from field observation, secondary sources, and oral interviews. The Park has an unusually rich flora species but limited fauna species.* Among the fauna species are the endangered Red-capped Mangabey and Grey-crown Crane, and the near-threatened Patas and Mona Monkeys. *There are wide range of avian species, which include, Lophocerous nasutus, Cinnyris venustus, Bubulcus ibis, Tylo alba, Ispidina picta, Ardea cinerea, amongst others.* Other ecotourism potentials in the Park are beautiful landscapes, amazing scenic views, *picnic site, museum and children playing ground. The dominant flora family is Leguminosae and the least dominant family is Verbenaceae.* For further development of ecotourism in the Park, necessary facilities and infrastructures need to be developed, especially for birdwatchers.

Keywords: ***Nature-based Tourism, Fauna, Flora, Management Strategy, Sustainable Development.***

Introduction

Ecotourism has been developed following the environmental movement which emerged in the late 1980s and grow rapidly in the last few decades (Wood 2002). It is often considered as a form of tourism with "a strong motivation" (Pananjay *et al*. 2011). Ecotourism is an ecologically-centred approach type of tourism that aims at reducing pressure on the natural environment and conservation of natural resources (Akpınar *et al*. 2010). It involves travelling to natural attraction areas that both conserve the culture and the environment while sustaining the wellbeing of the local community (Pananjay *et al*. 2011). *Ecotourism resources are natural and cultural features that attract visitors to an ecological-friendly destination and are* the bedrock of ecotourism, thereby providing an avenue for tourist influx or continuous patronage (Cetin and Sevik 2016). *These resources* play a significant role for the development of ecotourism and for marketing the destination for the future. In principle, ecotourism is environmentally and culturally sensitive, educational, and locally controlled. Thus, host communities would see the economic value of preserving resources and encouraging biodiversity (Weaver 2002). Protected areas are major tourism assets for a nation, particularly for developing countries providing sustainable benefit to the local community (Pananjay *et al*. 2011).

Ecotourism has become one of the fastest growing sectors of the tourism industry growing at the rate of 10-15% worldwide annually (Cater 1993). It offers nations the opportunity to get the most out of their natural attractions and to gain all the economic benefits without losing their rich biological resources. With a growing concern for the conservation of biological resources through protected areas, coupled with a strong desire to travel, many travellers are beginning to discover the benefits and advantages of ecotourism, which has become the fastest growing tourism market in the world (Agrusa and Guidry 1999). The benefits of ecotourism include, increased foreign exchange receipts, infrastructure development, job creation, new markets for locally produced goods, increased government revenues through fees and taxes paid by visitors, and serves as insurance for the protected areas from being converted to other land use types (Himberg 2006). Another important aspect of ecotourism is the encouragement of active participation by the local population in the conservation and education dimensions. For effective and sustainable management of protected areas, development must start with the people first, as it is from this basis that the tourism industry will develop, and their involvement will allow them to avoid many undesirable engagements in the environment. At global level, tourism is significantly contributing to sustainable development, alleviating poverty, and the management of natural resources (Pananjay *et al*. 2011).

Ecotourism aims to conserve resources, especially biological diversity, and maintain sustainable use of resources, which bring ecological experience to travellers, conserve the environment, and gain economic benefit (Zulia and Yanuwiadi 2015). Ecotourism is often perceived as a tool for promoting sustainable development in developing countries (Zulia and Yanuwiadi 2015). The principles governing ecotourism include minimal impact on the environment, building environmental awareness, providing financial benefits for conservation and empowerment for local people (Tisdell 2011). Ecotourism contributes to the conservation of biodiversity while sustaining the well-being of the local people (Wood 2002). In other words, ecotourism is the platform where conservation and development can be balanced to benefit the local populace.

The aim of this study is to explore the ecotourism resources of Prof. Afolayan Wildlife Park and their prospects for ecotourism development.

Methodology

Study Area

This study was carried out at Prof. Afolayan Wildlife Park located in the Federal University of Technology, Akure (FUTA), Ondo State, Nigeria. Akure, the capital of Ondo State is situated about 430 Km driving distance from Abuja, the capital city of Nigeria and one of the fast-growing cities in Nigeria (Adekola *et al*. 2019). It lies on latitude 7.25°N and longitude 5.19°E. The city is located on 396 meters high above sea level (Odewumi *et al*. 2020). The Park is located between the mini (Obakekere) and main (Obanla) campus of FUTA. It is a lowland tropical rainforest ecosystem with a total area of 8.91 ha (Afolayan and Agbelusi, 1987). Some of the indigenous tree species found in the Park include *Parkia biglobosa*, *Daniellia oliverii*, *Khaya senegalensis*, *Acacia seyel, Anogeissus leicocarpus, Ficus* spp, *Manihot glaziovii, Alchornea laxiflora*, *Musa spp*, *Bombax bunopozense*, *Chrysophyllum albidium*, *Gliricidia sepium*, *Magnifera indica*, *Milicia excelsi*a, *Mikania spp*, *Bambusa vulgaris,* among others (Idowu 2010).

Data Collection and Analysis

Data was collected through preliminary study, field observation, interview, and documentation. Preliminary study was conducted to get comprehensive picture of the study area. Field observation was conducted to assess the various ecotourism resources in the Park. Fauna species were observed directly in the pens provided to house them, and indirectly through indices such as droppings, footprints, carcasses, etc. Transects were constructed at different locations in the area and subdivided into plots at varying distance of 10 metres along each transect to sample different flora species in the Park. The same transects were used to assess avian species in the Park using both point count and line transect methods. Other ecotourism resources present in the Park were assessed directly and recorded. A questionnaire was designed to collect relevant information from visitors on their perception about the Park. The Park staff were also interviewed to get more information about the Park. Data obtained from interviews with several informant as well as from direct observations were documented and analyzed using descriptive analysis (Zulia and Yanuwiadi 2015).

Results Ecotourism Resources in Prof. Afolayan Wildlife Park

Prof. Afolayan Wildlife Park is relatively rich in cultural, natural and man-made features for ecotourism development. The ecotourism resources identified in the Park include flora, fauna, beautiful landscapes, amazing scenic views, *picnic site, museum and children playing ground.* Among the fauna species are the endangered Red-capped Mangabey and Grey-crown Crane, and the near-threatened Patas and Mona Monkeys (Table 1). Bird species diversity varied in the Park: The population of Grey Hornbill (16.67%), Variable Sunbird (9.09%), and Cattle Egret, Allied Hornbill and Collared Sunbird (7.58%) are high while the populations of African Owl (2.27%), Pigmy kingfisher, Black-billed wood dove, White-billed throated bee-eater, Black Kite, Red-backed scrub robin and African jacana (1.52%), Black-headed heron, Grey-headed kingfisher, African goshawk, Brown-backed woodpecker and Hammerkop (0.76%) are low (Table 2). The dominant flora families include Leguminosae (15.00%) and Sterculiaceae (12.50%). The least dominant flora families include Caricaceae, Meliaceae, Loganiaceae, Poaceae and Verbenaceae (2.50%) Table 3).

Table 1: Fauna of Prof. Afolayan Wildlife Park

Common name	Scientific name	Family	IUCN Status
Nile Crocodile	*Crocodylus niloticus*	Crocodylidae	Least Concern
Ostrich	*Struthio camelus*	Struthionidae	Least Concern
Tantalus Monkey	*Cercopithecus tantalus*	Cercopithecidae	Least Concern
Patas Monkey	*Erythrocebus patas*	Cercopithecidae	Near Threatened
Mona Monkey	*Cercopithecus mona*	Cercopithecidae	Near Threatened
Baboon	*Papio anubis*	Cercopithecidae	Least Concern
Red-capped Mangabey	*Cercocebus torquatus*	Cercopithecidae	Endangered
Greater Cane Rat	*Thryonomys swinderianus*	Thryonomyidae	Least Concern
Maxwell Duiker	*Philantomba maxwellii*	Bovidae	Least Concern
Grey-crown Crane	*Balearica regulorum*	Gruidae	Endangered
Squirrel	*Sciurus vulgaris*	Sciuridae	Least Concern
Duck	*Anasplaty rhynchos*	Anatidae	Least Concern
Rock Python	*Python sebae*	Phthonidae	Least Concern
Red-flanked Duiker	*Cephalophus rufilatus*	Bovidae	Least Concern
Grimm's Duiker	*Sylvicapra grimmia*	Bovidae	Least Concern
Grant's Gazelle	*Gazella granti*	Bovidae	Least Concern

Table 2: Birds of Prof. Afolayan Wildlife Park

Common name	Scientific name	Family	IUCN status
Cattle Egret	*Bubulcus ibis*	Ardeidae	Least Concern
Black-headed Heron	*Ardea cinerea*	Ardeidae	Least Concern
Chestnut-Weaver	*Ploceus rubiginosus*	Ploceidae	Least Concern
Red-billed Firefinch	*Lagonosticta senegala*	Ploceidae	Least Concern
Red-headed Malimbe	*Malimbus rubricollis*	Ploceidae	Least Concern
Grey Hornbill	*Lophoceros nasutus*	Bucerotidae	Least Concern
African Pied Hornbill	*Lophoceros fasciatus*	Bucerotidae	Least Concern
Pigmy Kingfisher	*Ispidina picta*	Alcedinidae	Least Concern
Grey-headed Kingfisher	*Halcyon leucocephala*	Alcedinidae	Least Concern
Laughing Dove	*Spilopelia senegalensis*	Columbidae	Least Concern
Red-eyed Turtle Dove	*Streptopelia semitorquata*	Columbidae	Least Concern
Black-billed Wood Dove	*Turtur abyssinicus*	Columbidae	Least Concern
Double-spurred Francolin	*Pternistis bicalcaratus*	Phasianidae	Least Concern
Didric Cuckoo	*Chrysococcyx caprius*	Cuculidae	Least Concern
White-throated Bee-eater	*Merops albicollis*	Meropidae	Least Concern
Little African Swift	*Apus affinis*	Apodidae	Least Concern
African Goshawk	*Accipiter tachiro*	Accipitridae	Least Concern
Vielliot's Black Weaver	*Ploceidae nigerrimus*	Ploceidae	Least Concern
Village Weaver	*Ploceus cucullatus*	Ploceidae	Least Concern
Common Bulbul	*Pycnonotus barbatus*	Pycnonotidae	Least Concern
Variable Sunbird	*Cinnyris venustus*	Nectariniidae	Least Concern
Collared Sunbird	*Hedydipna collaris*	Nectariniidae	Least Concern
Brown-backed Woodpecker	*Dendropicos obsoletus*	Picidae	Least Concern
Hamerkop	*Scopus umbretta*	Scopidae	Least Concern
African Jacana	*Actophilornis africanus*	Jacanidae	Least Concern

Table 3: Flora of Prof. Afolayan Wildlife Park

Common name	Scientific name	Family name
Pawpaw	*Carica papaya*	Caricaceae
Common Star Chestnut	*Sterculia rogersii*	Sterculiaceae
West A frican Albizia	*Albizia zygia*	Leguminosae
Guava	*Psidium guajava*	Myrtaceae
Siam Weed	*Chromolaena odorata*	Compositae
Bamboo	*Bambusa vulgaris*	Poaceae
Banana	*Musa sapientum*	Musaceae
Yellow Mombin	*Spondias mombin*	Anacardiaceae
Gmelina	*Gmelina arborea*	Lamiaceae
Ebony Tree	*Diospyros mespliforimis*	Ebenaceae
African Star Apple	*Chrysophyllum albidum*	Sapotaceae
Cocoa	*Theobroma cacao*	Sterculiaceae
Kolanut	*Cola acuminata*	Sterculiaceae
Coconut Palm	*Cocos nucifera*	Arecaceae
Sandpaper Tree	*Ficus exasperata*	Moraceae
African Teak	*Melicia excelsa*	Moraceae
Cassava	*Manihot esculenta*	Euphorbiaceae
African Mustard Tree	*Ficus capensis*	Moraceae
Cabbage Tree	*Anthocleista djalonensis*	Loganiaceae
Silk Cotton Tree	*Ceiba pentandra*	Bombaceae
Common Wireweed	*Sida acuta*	Malvaceae
Lung Wort	*Cissampelos owariensis*	Menispermaceae
Ginger Lily	*Costus afer*	Zingiberaceae
Wild Rubber	*Funtumia elastica*	Apocynaceae
Lead Tree	*Leucaena leucocephala*	Leguminosae
Hibiscus Plant	*Hibiscus surattensis*	Malvaceae
Fertility Tree	*Newbouldia laevis*	Bignoniaceae
White Afara	*Terminalia superba*	Combretaceae
Calabash Tree	*Crescentia cujete*	Bignoniaceae
Mango Tree	*Mangifera indica*	Anacardaceae
Quickstick	*Gliricidia sepium*	Fabaceae

Table 4: Animal effigy of Prof. Afolayan Wildlife Park Museum

Common name	Scientific name
Cane rat	*Thryonomys swinderianus*
Squirrel	*Sciurus carolinensis*
Peacock	*Pavo cristatus*
Rose-ringed Parakeet	*Psittacula krameria*
Red Patas Monkey	*Cercopithecus patas*
Tree Pangolin	*Phataginus tricupis*
Tortoise	*Geochelone elephantopus*
Latham's francolin	*Peliperdix lathami*
Helmeted Guinea Fowl	*Numida meleagris*

Table 5: Animal trophies of Prof. Afolayan Wildlife Park Museum

Common name	Animal trophies
Buffalo	Skull and skin
Western Hartebeest	Skull and skin
Antelopes	Horn and Bone
Duiker	Dung and Bone
Waterbuck	Skull and Bone
Roan Antelope	Skull and skin
Elephant	Skull
Hippopotamus	Skull and dung
Bush Buck	Skull and skin
Gazelle	Skull and Bone
Red-flanked Duiker	Skull and skin
Tortoise	Shell
Turtle	Shell
Oyster	Shell
Ostrich	Egg and skin
Baboon	Skin and Bone
Guereza Colobus	Skin
Python	Skin
African Civet Cat	Skin

Fig. 2: Nile Crocodile in Prof. Afolayan Park

Fig. 3: Ostrich in Prof. Afolayan Park

Fig. 4*: Bambusa vulgaris* in the Park

Fig. 5*:* Effigy of Elephant skull in the Park

Fig. 6: Animal trophies in Prof. Afolayan Park museum

Fig. 7: Picnic site in Prof. Afolayan Park

Discussion

Prof. Afolayan Wildlife Park has limited but significant ecotourism resources, which include flora, fauna, beautiful landscapes, amazing scenic views, *picnic site, museum and children playing ground*. These resources have potentials of attracting tourists from Akure and even Ondo State to the Park. Ondo State is blessed with variety of tourist attractions, which include Idanre Hills, Ayetoro Community of Holy Apostles, The Owo Museum of Antiquities, Oke Maria at Oka-Akoko, Deji of Akure palace, Ebomi lake at Ipesi-Akoko, among others. Ecotourism resources in protected areas could generate more revenues to benefit the local people and contribute to conservation (Scwenk 2002). The most important industry in sustainable tourism is ecotourism that contains a deep relationship with the sustainable development (Hosseinalizadeh *et al.* 2018)

The Park is rich in diverse bird species which have the potential to complement the zoological garden within the Park in terms of bird watching as well as research and education. The density of birds though a bit lower is still within the range of forest bird densities and is an indication that the habitat has the potential to support diverse bird species. The Park supports both in-situ and ex-situ conservation. The study revealed that the Park is within the rainforest ecosystem with tall trees, short trees and few grasses. These flora resources have medicinal and cultural values. A similar study carried out at South Eastern, Nigeria revealed diverse ecotourism potentials, which include Lakes, Beaches, Waterfalls, Hills, Valleys, Rock formations, Caves, Forests, Gulf Course and Forests (Onyeabor 2016). Ecotourism inherently combines the use of physical, natural and cultural resources to produce great touristic effects (Madzara 2011). This is supported by findings from Europe (Fodor 2009) and Southern Africa (Flyman 2003).

The Park also provides tourists with different facilities such as picnic site, museum, children playing ground, swings for children and indoor games. The Park picnic site is made of bamboo and concrete benches. The museum houses objects of artistic, cultural, historical and scientific interests for public viewing. Museum has ceased to be regarded as the convenient repository of antiquated items but a powerful institution to promote ecotourism (Duffy 2002). Information about natural history of wildlife trophies in the museum are on display for educational purpose. The children playing ground provides relaxation and fun for children.

Conclusion and Recommendations

Prof. Afolayan Wildlife Park is endowed with unique but limited biodiversity and scenic beauty. The flora resources can be useful for ethno-botanical study and if bird conservation is to become a priority, it would increase tourist patronage. However, premium attention must be placed on conservation of these resources to achieve the Park's goal and objectives. We recommend that the Park boundary should be well-demarcated and fenced to ensure maximum protection. Attention should also be given to high-quality research vis-à-vis educating the local people about biodiversity conservation.

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