



Appraisals of decline of fauna diversity in Nigeria forests

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Abstract

Biodiversity of global importance are found in the Nigeria forests. Such biodiversity comprises of several species of mammals, reptiles, amphibians, avian fauna, microorganisms, fisheries, mosses, liverworts and plants. Nigeria National Parks are hotspots of several endemic species. However, these biological components are variously reported to be on the decline. This study therefore seeks to attempt an appraisal of the decline fauna diversity in Nigeria forest. The studies found that excessive exploitation, urbanization, industrialization, deforestation, habitat destruction, bush burning, pollution, climate change are the leading cause of loss of fauna diversity. The loss of fauna diversity affects the dynamics of the forest ecosystems in its role as a conservation resource. The paper concludes by suggesting full implementation and enforcement of several environmental conventions, legislations and summits geared towards protection of biodiversity at both international and national level of which Nigeria is a signatory. Furthermore, outlining biodiversity conservation strategies in curriculum of school is another potential option for fauna diversity conservation and preservation.

Keywords: appraisals, decline, fauna, diversity, natural habitat, Nigeria

Introduction

Substantial relationship exists between species diversity and ecosystems functions. The general view of these relationships is that the diverse ecosystems are more productive, use resources more efficiently and are more stable (Ishola, 2014) [22]. However, data exist on how the status of fauna varies without effort to census in their local levels. Information however, suggests a reduced and continuously declining of fauna diversity (Moller and Mousseau, 2010) [27]. The situation was partly interpreted as secondary forests having important roles to play in the conservation of biodiversity if secondary succession can accumulate species rapidly (Scorecard, 2011) [48]. Therefore, managers of landscapes dedicated to forest commodity production require information about how practices influence biological diversity. Individual species and communities may be threatened if management practices truncate or simplify forest age classes that are essential for reproduction and survival (Jay *et al.*, 2012) [23]. This study there seeks to appraisal the declining of fauna diversity in Nigeria forests under the highlighted sub-themes.

Wild Fauna in Nigeria

Nigeria is located in the western part of Africa between latitudes 4° 16'N and 14° 37'E. It occupies a total land area of 923,768km² with a population 160 million people (Wikipedia, 2011). By virtue of its geographical extent, it spans different climatic and ecological zones. The variable climatic conditions and physical features have endowed Nigeria with a very rich biodiversity. The mean annual rainfall ranges from about 450 mm in the northeast to about 3500 mm in the coastal southeast, with

rain falls within 90 to 290 days respectively. The mean annual temperature ranges from 27° C in the south to 30° C in the north with extreme of 14° C and 45° C and an altitude range of 0 – 1000m above sea level (FGN, 2010).

Nigeria is rich in wild fauna resources and can therefore boast of a high biodiversity. There are 22,000 vertebrate and invertebrate species, about 20,000 insect, 1,000 bird, 1,000 fish, 247 mammal and 123 reptile species (Nigeria Fourth National Biodiversity Report (NFNBR), 2010). The diversity of Nigeria's wild animals can be attributed to the country's tropical location, size and its ecosystems (FAO, 2000). These varieties of ecosystems range from rainforests in the south to moist savannah in the central part of the country and dry arid savannah in the far north. There are also freshwater, brackish and marine ecosystems occurring, while features of montane vegetation have been found at high altitudes in the eastern borderlands and north central region of Jos plateau (Falade & Adebajo, 2008) [14]. The country's rich fauna is also as a result of the diverse vegetation types of these ecosystems. There are mammalian species such as the African Elephants, African buffalo and hippopotamus existing in the rainforest. Other large mammalian species found here are the large duikers, Chimpanzee, and red river-hog. The savannah areas house species such as the hartebeest and warthog and most of the carnivores. Grass cutters, Giant rats and tree squirrels are among the vast variety of small mammals that exist in the savannahs as well as a range of primates (Wildlife Conservation Society (WCS), Nigeria Strategy (2012). The lowland rain forest provides habitat also for about 200 species of birds (FAO, 2000). Four of the bird species; Anambra waxbill, Ibadan malimbe, Jos Plateau

indigo-bird and the Rock Fire-Finch are endemic to the country, making them globally important species for conservation (Nigeria National Biodiversity strategy and action plan (NBSAP, 2007). Nigeria is also noted as a global hotspot for some species

of primate. A great diversity of this is found especially in the Gulf of Guinea forests of Cross River State. Some of these species are endemic to Nigeria, like the white-throated monkey, Sclater's guenon and the Niger Delta red colobus.

Table 1: Endemic Wild fauna species in Nigeria

Mammals	Birds	Reptiles	Amphibians
Sclater's Guenon	Ibadan malimbe	Dunger's file snake	Nigerian toad
Fox's Shaggy Rat	Jos-Plateau Indigo bird	Wormsnake	Danko puddle frog
Gotel Mountain soft furred mouse	Rock firefinch	Giant forest Gecko	
Savanna swamp shrew	Anambra waxbill	Ondo forest Gecko	
Forest Shrew		West African worm lizard	
Delta Red Colobus monkey			

Source: <http://Intreasures.com/nigeria.html>.

Sedghi (2013) ^[47] reported on the latest update of the IUCN Red List of threatened animal species across the regions of the world. IUCN collectively categorizes as threatened, species that are

listed as critically endangered, endangered or vulnerable. Thus, of the 71,576 animal species that were assessed, 21,286 were said to be threatened with extinction.

Table 2: Threatened biodiversity in Nigeria

SPECIES	STATUS
Cross River Gorilla	Critically endangered, approximately 100 remaining at 3 sites in Cross River
Forest Elephant	Endangered, small population found in Oban and Okwango division of Cross River National Park
Savannah Elephant	Endangered, last remaining population may be in Yankari game reserve, where approximately 450 are left
Nigeria-Cameroon Chimpanzee	Critically endangered, with 1500-3000 left in Nigeria
African Lion	Presently critically endangered in Nigeria, with about 50 left in the wild at Yankari and Kainji-lake National Park.
Niger Delta red colobus monkey	Critically endangered, found in the marshy forests of central Niger-Delta
Preuss's red colobus monkey	Threatened locally with extinction, and found around the Oban hills of Cross River national park
Grey-headed Picathartes	Threatened
Preuss's guenon	Threatened, found in the Obudu plateau and Okwango areas of Cross-River state and South-west Cameroon
Leopard	Endangered, though there is very little information. The few left may be found at Gashaka-Gumti national park
African Wild Dog	Endangered, hunted out at GashakaGumti recently, but may still be found at Kainji-lake national park.
Gazelle	Endangered
Giraffe	Endangered
Nile crocodile	Endangered

Source: IUCN Red list (2013)

Causes of Loss of Fauna Diversity

Available evidence shows that biodiversity is being lost at a disturbing rate in Nigeria. The causes of biodiversity loss are largely related to human factors. These are due to interactions with the environment for development, improved quality of life resulting from industrialization, technological advancement and rapid growth in urbanization. The direct causes of biodiversity loss in Nigeria include the following economic policies: rising demand for forest products, cultural practices, poor law enforcement and weak laws. Some of the major causes of loss of biological fauna are explained below:

1. Population Pressure

As already indicated, the population of Nigeria is expected to increase to about 250 million by 2030. This will translate to increased demand for natural resources thereby posing threats to biodiversity. With increase in population and consequent increase in demand for biodiversity resources, natural habitats are being destroyed for plantation establishment, irrigation, urbanization, roads, food and livestock production, and non-timber forest resources utilization. High intensity of illegal exploitation of these species has continued to pose serious threats to the country's forest resources.

2. Destruction and Loss of Wild Habitats

The ever-increasing population in Nigeria may mean that more people will encroach on the few remaining natural ecosystems for wild animals. These larger populations are concentrated in the forested areas of the south and the large urban centres of the far north (Nigeria First National Biodiversity Report (NFNBR), 2001). Coincidentally, it is in these same locations that the few remaining populations of most endangered species found in the country are left. For example, the Cross-River Gorilla found in the southern forested areas of Cross River state and protected in the Cross River National park, and the Savannah Elephant found in Yankari game reserve of Bauchi state in the North. Another activity that has often resulted in destruction of wild habitat is the dry season fires mostly set by poachers.

Excessive Hunting and Poaching

Hunting is perceived as a vocation in certain parts of Nigeria, especially in the rural communities where it might be a traditional family occupation. The activity takes place both day and night throughout the year, and anything larger than 2 kg is considered fair game meat (Adams, 2016; NFNBR, 2001) ^[38]. Poaching, which is any form of illegal entry into a protected area also has become more common as people enter to gather fuel wood, fell trees, fish and hunt without permission. In a survey of African grey parrots (*Psittacus erithacus*) carried out at the Ikpan forest

block of the Oban sector of Cross River National Park, an area contiguous with the Korup National Park of Cameroon, it was established that trade and trafficking of these birds occurs in this area, with an average catch of eight parrots per day per man (Edem *et al.*, 2008) ^[11]. This has drastically reduced the population of parrots in the area as confessed by one of the parrot trappers who was engaged in the survey.

Each year, hundreds of millions of plants and animals are lost from the wild as food, pets, ornamentals, leather, tourist curios and medicine, while a lot is illegal and survival threatening, many lead to over-exploitation and habitat loss (Nigeria First National Biodiversity Report (NFNBR), 2001). Hunting in Bioko has reduced primate population in Equatorial Guinea by 90% in some areas; beautiful forests are becoming increasingly silent as their wildlife is hunted; the devastating effects of Wildlife poaching include negative side effects that affect local communities, wildlife populations and the environment; the crime is encouraged by lucrative black market trade of animal parts which are sold as novelty items and “medicinal” properties (One Green Planet, 2015). Monthly survey of marketed wild animals along five highways in southwest Nigeria revealed that a total number of 69,398 wild animals were harvested within two years (2012 and 2013) and the leading figures in each group were distributed as *Achachatina marginata* (African Land Giant Snail) (invertebrate): 43,876, *Achatina achatina* (African Land Giant Tiger Snail) (also invertebrate): (13,837); *Numida meleagris*: (Guinea fowl) for bird group was (697). *Kinixys homeana*: in reptiles division was (13) and *Thryonomys swinderiauis* (Cane rat) as representative mammal was (2380) (Mustafa, 2018) ^[28]. The same study revealed that more animals were harvested in 2013 than 2012, implying that human dependence on forest resources were on the increase.

3. Man's Interference with Nature

There is no doubt that human civilization has had a negative impact on biodiversity particularly since industrial revolution: overfishing and hunting, habitat destruction through agriculture and urban sprawl, the use of pesticides and herbicides and release of other toxic compounds into the environment have also taken their toll particularly on vertebrates (Ogunjimi *et al.*, 2014). Human impact on the natural environment is of crucial importance for social and economic life in the area of resource for food supply, energy source, major source of medicines and natural source of industrial products. Today, human pressure on natural environment is greater than before in terms of magnitude and efficiency in disrupting nature and natural landscapes through agriculture, energy, tourism and technology (Ogunjimi *et al.*, 2014).

Until recently, efforts at assessing and monitoring forests have focused on the amount of forests remaining as timber volume stand. Increasingly, the multiple benefits and functions of forests including provision of non-timber forest products, hydrological functions, carbon sequestration and biodiversity protection have been recognized. Humans affect forests differently and the magnitude of influence depends on the methods employed locally, forest type and other anthropogenic factors (FAO Corporate Document Repository, 2004).

4. Deforestation

Another way in which man distorts his environment is deforestation. It means conversion of forest lands to non-forest lands deliberately or otherwise for use as arable land, pastures,

urban use or logged area (Williams, 2003) ^[35]. Causes of deforestation include use of forest for fuel wood, commercial logging and shifting cultivation and the consequences include global warming, irregular rainfall and flooding (Adekunle and Akinlemibola, 2008) ^[5]. The reasoning was extended by describing flood as occurring when water which is usually below the level of the stream banks much of the year overflows its banks due to higher discharge. They categorized flood as natural and induced but reported that the damages of both are devastating.

Deforestation also results in climate change which is deviation from the normal climatic condition of an area due to land-atmosphere, land-ocean and ocean-atmosphere interactions of an area causing alterations of gases in the atmosphere (Okali, 2007) ^[39]. Effects of these forms of environmental degradation are numerous: they include distortion of agricultural cycle, animal mating aberration and changes in migration pattern (Ijioma and Aiyeloja, 2008) ^[19]. More effects are disturbance in metabolic rates, egg development, survivorship, sex ration, length of oestrus cycle parasitic infection rates and flooding pattern (Adekunle and Akinlemibola, 2008) ^[5]. Climate change also results in species' extinction, decrease in floristic richness; reduction of fruiting intensity, aberrations in animal mating and changes in birds and animal migratory pattern (Ijioma and Aiyeloja, 2008) ^[19].

Other consequence of deforestation is absconding of habitats by species because they reported that honey bees disappeared from some farming communities in Katsina State of Nigeria when tree species on which bees nested to produce honey were removed from the landscape. Wildlife population is also suffering under man-wildlife conflict; based on population conflict, International Union on conservation of Nature (IUCN) reported that species status should be given serious concern and remedy strategies (Onyeanusi and Abafaras, 2006) ^[42].

It was on this note that Ine *et al.* (2016) recommended that climate change awareness should be created on the students via their teachers and consequently, the whole populace. In this respect, efforts should be made to put in place integrated approaches for the adaptation and mitigation and one sustainable way to achieve this is through education and capacity building. According to these workers, to realize this, the curriculum of educational institutions has to be revised to accommodate the current issues of climate change.

Olaleye and Aiyeloja (2013) ^[19] opined that continued deforestation and forest degradation around the world affect the availability of forest goods and services. They mentioned planting of leaf and fruit vegetables, tree fruits; spices and stimulants and wildlife resources conservation as valuable non-timber forest resources as strategies in environmental restoration as well as rural dwellers' empowerment if managed properly. In the same vein, Odewo *et al.* (2011) ^[35] emphasized that non-timber forest products in addition to cushioning the effects of climate change and deforestation also cure human infertility of various origins.

Evidence of climate change in Ibadan which is centrally placed in the study area includes unpredictability of August dry spell that guides farmers in their planting; decline in rainfall, increase in minimum and maximum temperatures and reduction of the number of rainy days for 46 years (Odojin, 2017) ^[36]. The situation is summarized in Table 1 as provided by Forestry Research Institute of Nigeria, (FRIN); Ibadan.

Table 1: Weather Records of Ibadan for 46 years

Years	Rainfall (mm)	Rainy days	Min. Temp. (°C)	Max. Temp (°C)
1970 – 1979	1444.0	92	21.6	26.9
1979 – 1989	1408.0	86	23.4	31.6
1990 – 1999	1373.0	100	23.6	32.7
2000 – 2001	1178.4	72	23.7	32.7
2001 – 2002	1133.6	54	23.6	32.9
2003 – 2004	1304.0	79	23.2	25.8
2004 – 2005	1006.6	62	24.2	24.2
2005 – 2006	1314.0	62	25.5	25.8
2006 – 2007	1198.5	56	23.7	23.9
2007	1079.3	66	23.7	32.6
2008	1435.8	98	24.5	32.1
2009	1504.1	93	24.2	31.5
2010	1702.5	117	24.8	32.2
2011	1433.6	99	24.7	31.7
2012	1433.7	99	24.0	31.4
2013	1530.9	90	24.2	31.9
2014	1130.1	87	24.4	31.5
2015	1150.2	88	24.7	31.8
2016	1150.4	88	24.9	32.0

Source: Odofin, (2017).

5. Human Interference with Animal Populations in the Wild

The earth has lost half of its wildlife in the last forty years. World Wildlife Fund (WWF, 2010) affirmed that species across land, rivers and seas decimated as human being kill for food in unsustainable numbers and destroy habitat. The causes globally include exploitation, habitat degradation and others. Each year, hundreds of millions of plants are caught or harvested from the wild and then sold as pets, ornamental plants, leather, tourist curios and medicine; this act threatens the survival of many endangered species with over-exploitation being the second largest direct threat to many species after habitat loss (WWF Global, 2010).

Habitats of different types for wild animals in forest have been dwindling at a very high rate as man manipulates his environment to maximize exploitation (Ajibade and Ayodele, 2007) [7]. The activities are tree felling, road construction and transportation (Ayodele and Lameed, 1999) [9]. Ladrach (2000) [26] also reported that habitats of different types are being constantly disturbed by man in their day-to-day activities such as sourcing forests of games. Often, more is killed than is really needed. Also, loggers leave inaccessible roads and hunters enter with vehicles and guns to finish off whatever wild animal is left (National Wildlife Restoration, 2015). A broad-area survey of southwest Nigerian forests in 2002 found huge pressures on the natural vegetation, which was being destroyed and converted at a rapid rate from excessive logging, conversion to plantations, farming and oil extraction. Their wildlife populations were being decimated by excessive uncontrolled hunting for the commercial bush-meat trade (Oates *et al.*, 2008) [29]. Savannah ecosystems have for millennia been affected by various forms of human activities, but during the last century fragmentation and disturbance have accelerated. Today there is an urgent need for conservation measures and adoption of sustainable use methods throughout Africa to avoid further degradation of the natural resources (Ali, 2011).

Rainforest consists of trees arranged in canopies with presence of tall, straight and evergreen species competing with epiphytes (Ramalingan, 2006) [46]. The moist tropical forest (also called

tropical rainforest) is the richest and most heterogeneous of the world’s ecosystems although there are variations in the abundance of species (Ojo and Ola-Adams, 1996) [38]. Among five forest reserves in South-west Nigeria namely Omo in Ogun State, Oluwa in Ondo State, Shasha, Ago Owu and Ife all in Osun State; the distribution and status of wildlife in these reserves by ground surveys, transects and hunters’ reports showed that Oluwa and Omo Forest Reserves accommodate monkeys, chimpanzees, antelopes and buffalo (NCF, 2008). The same source reported that mammal signs such as elephant droppings (Plate 1) were abundant in western Omo than in other forest areas, the situation which was partly accounted for by prevalence of elephant signs in this area. Also primates were often much more encountered there than in other areas (Table 2). Furthermore, the great majority of animal records were of tracks or dung (Plate 1) with a few primate calls heard, while very few animals were sighted.

Table 2: Mammalian species and individual numbers from transects in Omo, Shasha and Oluwa Forest Reserves

Animals	Western Omo			Shasha River			Oluwa F.R.		
	No	No per Transect	No per Km	No	No per Transect	No per Km	No	No per Transect	No per Km
All Mammals	105	11.7	2.33	10	1.67	0.33	33	4.71	0.94
Elephants	35	3.9	0.78	-	-	-	-	-	-
Ungulates	20	2.22	0.44	8	1.33	0.27	13	1.86	0.37
Primates	31	3.44	0.69	2	0.33	0.07	13	1.86	0.37

Source: National Conservation Fund, NCF (2008)

Key: No. =number of animals
 No//transect= Animal number per transect
 No./Km= Animal number per kilometre
 - = No Figure
 Animal species were identified



Source: NCF (2008).

Plate 1: Elephant dung in Omo Forest Reserve.

7. Pollution

Pollution is the introduction of contaminants into a natural environment in a way that causes instability, disorder, harm or discomfort to the ecosystem i.e. physical systems or living organisms (Jerrie, 2005) [24]. Pollution can take the form of chemical substances, some come as noise, heat or light; they can be foreign substances or naturally occurring, they are considered contaminants when they exceed natural levels (Scorecard, 2011) [48]. In man’s efforts to increase food production, raise standard of living and boost agricultural and industrial activities, atmospheric pollution from release of oxides of carbon, sulphur and Nitrogen results. Other ways involve the release of pollutants such as, hydrocarbons and chlorofluorocarbons into the

ecosystem, resulting in air, water, land and thermal pollution (Ramalingan, 2006) [46]. Motor vehicle emission is one of the leading causes of air pollution. Other forms of pollution taking place in natural environments are thermal, visual and water pollution (Scorecard, 2011) [4]. Heavy metal pollution is common in areas where vehicular traffic is persistent. These metals include Zinc, Lead, Mercury, Cadmium and copper; smog and particulates (Jerrie, 2005) [24]. Mustafa (2018) [28] assessed the heavy metal load of organs and flesh of cane rat (*Thryonomys swinderianus*) and reported that roasted flesh had the highest lead (Pb) contamination (1.44 mg/kg), followed by raw samples of lung, liver, kidney and flesh with contamination load figures (in mg/kg) of 0.81, 0.79, 0.72 and 0.61 respectively.

Effects of Over-Exploitation of Forest and Wildlife Resources Biodiversity Loss

Emelue and Akinwande (2013) [12] defined biodiversity as the variety of living things in an environment. According to them, it therefore means conservation and preservation of these varieties should be of great concern at the local, national and international levels. It was observed that human activities have contributed to species extinction and this situation has made the safeguarding strategies imperative (Ayodele *et al.*, 2013). In continuation to this, Ajibade and Ayodele (2007) [7] assessed effects of human activities on the environment; they observed that human forest exploitations leads to forest disruption/habitat destruction and animal population decline. Canon *et al.* (1998) cited by Adebola and Agbede (2012) observed that the diversity of trees is fundamental to rainforest diversity and that the world forest, Nigeria inclusive is devilled with the problem of forest depletion. The negative impact of such includes loss of biodiversity, desertification and famine to mention a few. Adegoke *et al.*, (2013) [4] however explained biodiversity from the aspects of variety and variability among living organisms and the ecological complexes in which they occur. The authors defined diversity as the number of different items which are organized at many levels ranging from complete ecosystem to chemical structures with molecular basis of heredity encompassing different ecosystems, species, genes and their relative abundance.

Ayodele *et al.* (2013) linked tourism with conservation of biological life as well as ecosystem maintenance. They asserted that habitat losses can be attributed mainly to the exponential increase in human population leading to increase in the demand for recreational use of public lands in many parts of the world. Plant and animal biodiversity is lost in tropical rainforests through natural disasters, human activities, habitat loss and fragmentation, pollution, over-exploitation, climate change and invasive species (Adegoke *et al.*, 2013) [4].

However, for conservation strategies to be effective, stake holders must take a 'habitat' rather than 'species' approach (Ayodele *et al.*, 2013). Climate change and deforestation have been reported to affect all aspects of biological and agricultural activities; to this effect, efforts to bring to minimal levels the serious effects have not been very successful in developing countries due to poverty and low level of environmental management (Mustafa *et al.*, 2008) [28].

As part of addressing the issues of biodiversity loss, the Nigeria First National Biodiversity Report (NFNBR), (2001) recognized biodiversity conservation as a relatively new science which must involve many professional fields such as ecology, biology,

genetics, anthropology, philosophy and economics in approaching *in-situ* and *ex-situ* conservation approaches. They recommended traditional and conventional conservation strategies such as agroforestry, school programmes, zoological and botanical gardens in saving biological species from going into extinction.

Roads also have negative impacts on biodiversity. To this effect, Parris and Schneider (2010) [45] studied effects of roads on environment and linked road transportation with habitat loss and fragmentation, air, water and soil pollution with constraints in acoustic communication. WDM (2008) checked impact of road construction on wildlife habitats, he reported that roads divide large landscapes into smaller patches and interior habitats where logging that reduces availability of cover brings together species that might otherwise not interact, leading to predation; intense hunting, disease and parasitism.

Over-exploitation of wildlife resources led to categorisation of animals on the basis of their abundance in the wild as:

Existing, endangered and extinct animals

Extinction of a particular animal or plant species occurs when there are no more individuals of that species alive anywhere in the world, today human intervention is causing a rapid extinction due to hunting, habitat destruction and over-exploitation (Oxford Museum of Natural History, OMNH, 2006). Endangered animals and plants are at risk of extinction because there are so few of them that they might soon be wiped out altogether, the source claimed.

An endangered animal species is the one that faces a very high risk of extinction (IUCN, 2016). Currently, the IUCN red list of endangered animals estimate 3,079 animals and 1199 plant species as endangered against 1,102 and 1197 respective estimation in 1998; many of which are veritable tools in traditional medicine (Orhiere, 1999) [43]. Africa has a long, valued tradition of using natural resources, especially animals and their products for medicinal purpose. Traditional African medicine, in its broad diversity and deep richness had been in existence long before the advent of more orthodox modern medicine and the people depended largely on traditional medicine as their only source of health care (Soewu and Adekanola, 2011).

The utilization of animals and animal parts in the preparation of several products employed in diverse ways for health care delivery via traditional medicinal practices enjoys very wide acceptance across Nigeria. Traditional Medicine (TM) plays such a significant role in meeting the health care needs of the majority of Nigerians that 75 – 80% of the Nigerian population uses the services of traditional healers (Gammaniel *et al.*, 2005) [18]. The figure quoted for Nigeria in that report agrees totally with the submission of World Health Organisation (WHO) that 80% of the world population relies on TM prepared mainly by the use of national products (animals and plants) to meet their daily health requirements (Soewu and Ayodele, 2009). Soewu (2013) observed that this utilization involves domestic as well as wild animals, and documented 136 different wild (of which 94 are endangered, 7 extinct, 11 as rare and the rest threatened) animals however, the use of animals taken directly from the wild naturally calls for more concern as it has all the potential to influence the functional dynamics of the ecosystem and ultimately the quality of life and even health care delivery for the people.

Extinction implies abolition and annihilation of something that previously existed in the world and this situation in biology refers

to the end of an evolutionary line or a branch on the tree of life, because animals are closely tied to their ecological niches and environment to bring healthy ecosystems (Encheaten, 2013)^[13].

Solutions to Loss of Fauna Diversity in Nigeria

The following strategies are proposed to enable the country preserve her rich biological fauna.

1. The Federal Government should implement without further delay the National Biodiversity Strategy and Action Plan adopted in 1988 to restore Nigeria to 25% forest cover by the year 2020 and to make definite efforts to end gas flaring.
2. The budgetary allocation to the forestry sub-sector should be increased in order to boost national efforts at reforestation of deforested areas especially in the Middle Belt and Northern part of the country
3. Forest and savannah vegetation that were cleared to make way for urban development projects such as roads, schools, housing estates etc. should be replaced to maintain a good environment in the urban centres, this will prevent or reduce pressure on hot spot areas.
4. Forest reserves especially in the northern part that is prone to desertification should be strictly kept as reserves. Laws should be enacted, so that no State governor in power has the right to remove the protection status on such reserves due to their ecological importance.
5. Environmental laws that control the management of several animal species should be updated and its enforcement adequate enough to punish offenders and serve as deterrent to others.
6. The activities of local farmers that are harmful to biodiversity and even hunters should be monitored and controlled. This can be through public enlightenment campaigns highlighting the negative impacts of their actions and importance of maintaining biodiversity.
7. Zoological gardens in the country must be upgraded and well maintained to become safe conservation homes for some already endangered species and not just entertainment centres for humans.

Conclusion

The declining status of wild fauna in Nigeria forests was explored. Despite the numerous benefits man derives from wildlife resources, the unsustainable exploitation of the species remain ever increasing. Anthropogenic activities such as bush burning, hunting and poaching, industrialization, urbanization have continued to threaten the abundance of fauna diversity in their habitat. Invariably, several fauna and flora diversity are faced with extinction and are classified either as threatened or endangered species. Conservation goals and objectives in the country's national policy ought to be given more attention as concerned NGOs continue to implore and support the government in integrating them.

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