

IMPACT OF HUMAN WILDLIFE CONFLICT ON SOCIO-ECONOMY OF SUPPORT ZONE COMMUNITIES OF CROSS RIVER NATIONAL PARK, NIGERIA

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ABSTRACT

Rural livelihood must be secured if biodiversity will survive. This makes it important to investigate the conflicts between rural communities in Cross River National Park (CRNP) who mostly dependent on natural resources of their immediate environment. A set of structured questionnaire was designed to gather information from support zone communities (SZC) of the park. From sampling frame of 20 and 25 listed SZCs in both Oban and Okwango Park divisions out of which four and five communities were randomly selected respectively using a sampling intensity of 20% from each list. In each of the 9 SZCs selected, 20 households were systematically selected. Data collected was augmented with Focused Group Discussions with SZC members in each selected community. All the community members surveyed engage in farming with 42.2% having alternative sources of livelihood. Most of the respondents experience the conflict between 1-10 times per year, while loss of crop ranked highest among the effects of HWC on the communities. Most of the victims attack and kill the animals as a management method in both communities. The custodians of biodiversity, prior to its protection, were the sole beneficiary of the resource. Their lives and livelihood should be secured after its protection to ensure availability of the resource in perpetuity. This calls for attention of policy makers and intervention of local, regional and international stakeholders concerned with wildlife management to ensure that sustainable development in the sub-sector is not impaired.

Key Words: Human wildlife conflict, rural livelihood, biodiversity protection, conflict management, Cross River National Park.

INTRODUCTION

Challenges of biodiversity protection, conservation and utilization are most felt by the rural communities who are the custodians of the resource. This is reflected on loss of lives, limbs or livelihood of the vulnerable people. The locals, who mostly depend on the land and its resources for their sustenance and having little access to opportunities for a better life, are often deprived unrestricted access to their only means of survival in order to protect and conserve biodiversity. This

happens with little or no alternatives being provided to them or compensation for their losses when in conflict with wild animals. Human wildlife conflict, which is an example of these challenges, is any interaction between humans and wildlife that results in negative impacts on human social, economic or cultural life, on the conservation of wildlife populations, or on the environment (SAPRO, 2005). It refers to the interaction between wild animals and people and the resultant negative impact on people or their

resources, or wild animals or their habitat. It occurs when growing human populations overlap with established wildlife territory, creating reduction of resources or life to some people and/or wild animals. The conflicts are sometimes controversial especially when the resources involved are of great economic importance and the problem wildlife is legally protected (Thirgood *et al.*, 2000). Surge in human population and resultant expansion of human activities in recent decades have been largely responsible for a shoot in the frequency of conflict (Conover, 2002). Studies around the world have shown that HWC is more intense in the developing countries where livestock holdings and agriculture are an

important part of rural livelihoods. In these regions, competition between local communities and wild animals for the use of natural resources is particularly intense and direct; and resident human populations are very vulnerable (Distefano, 2010). Competition for limited space and resources between humans and wild animals, whose needs are often overlapping, is the primary source of conflict between them. Damages by wildlife could have serious economic consequences especially for vulnerable households. Major consequences of HWC include crop and property damage, livestock toll, harassment of people, injury or death. These are more serious in the tropics and in the developing countries (Treves, 2007; FAO, 2009).



Plate 1: Farmer Using Chilli-pepper Extract as Primate Repellant on his Farm
Source: FAO (2009)

Overlap between human settlements and established wildlife territories has always generated crisis not only in Africa but world over (Eniang *et al.*, 2011) due to stress on both and competition for limited space and resources between them. The interest of both human and wildlife is of great importance for the maintenance of ecological balance and sustainable resources management, especially in an ecosystem that protects a unique species of global importance. This study is thus carried out in Cross River National Park, one of 25 UN biodiversity hotspots

in the world, to bring to focus the implications of human wildlife conflict on the socio-economy of support zone communities.

METHODOLOGY

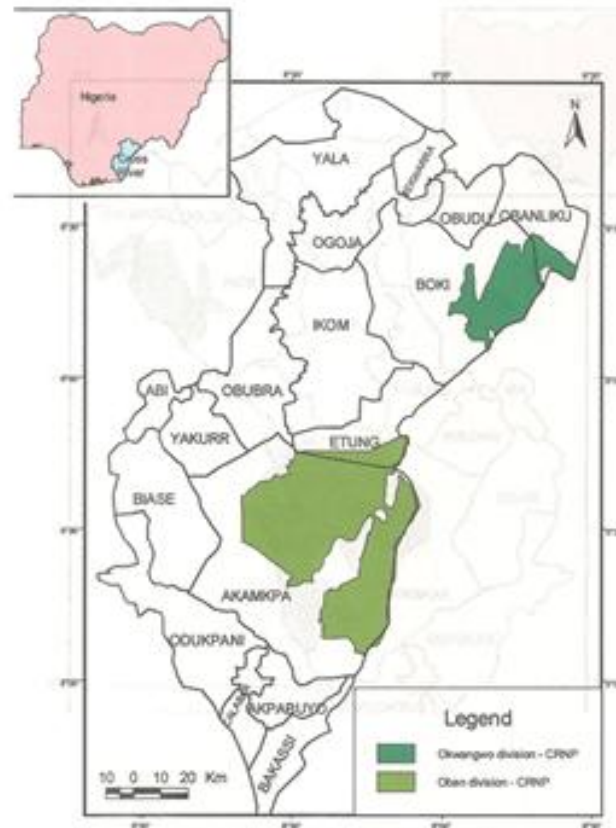
Study Site

Cross River National Park is located between latitudes 5° 05' and 6° 29' N, and longitudes 8° 15' and 9° 30' E, in the extreme south-eastern corner of Nigeria, in Cross River State. It covers an approximate land mass of 4000 km² of mainly primary moist tropical rainforest ecosystem in the north and central parts, and montane mosaic

vegetation on the Obudu Plateau. The park exists in two non-contiguous divisions – the larger southern Oban Division with an approximate land area of 3000km² and the smaller northern Okwangwo Division covering an approximate area of 1000km² (Fig. 1).

It is Nigeria's remaining Great Rainforest Reserve, and the closest to the mangrove swamps on the coastal region. Contiguous with Korup National

Park in the Republic of Cameroon, Cross River National Park, Oban Division is an important biotic reserve which contains one of the oldest rainforests in Africa. The park is rich and diverse in communities of plant and animal species including 119 mammal species (which include 18 out of the 23 species of monkeys found in Nigeria), 48 fish species, 52 snake species, 382 birds and 1,568 plant species among others (Ita, 1993).



1 Fig. Map of Cross River State Showing the location of Cross River National Parks

SOURCE: Cross River State Forestry Commission Calabar

Map produced by Bridge Way GIS Centre

Sampling techniques, sampling size and questionnaire administration

Data was generated from primary and secondary sources. A set of structured questionnaire was designed for the study to gather relevant information from the Support Zone Community (SZC) members in Cross River National Park. This was augmented with focused group discussions (FGD) with hunters, farmers, village heads and

chiefs. Secondary information was obtained from the National Population Commission.

A sampling frame of twenty and twenty-five communities from Oban and Okwangwo respectively were listed for the study. Using a sampling intensity of twenty percent (Eniang *et al.*, 2011), four and five communities were randomly picked for Oban and Okwangwo respectively. The randomly selected communities are Aking, Osomba, New Ndebiji and Ntebacho in Oban

Division while Bashu, Okwangwo, Anape, Okwa and Butatong were selected in Okwangwo Division. Twenty households were systematically selected in each community by picking one household and skipping three. Thus twenty questionnaires were administered in each community targeting heads of households. This gives a total of eighty (80) and one-hundred questionnaire (100) administered in Oban and Okwangwo respectively. Two indigenous park rangers were used as enumerators in each of the communities.

Statistical analysis

Data generated from the survey was processed with Statistical Package for Social Sciences (SPSS Version 20.0), and subjected to descriptive analysis.

RESULTS

Demographic characteristics of respondents

Demographic features of household heads are presented in Table 1. Support zone villages of CRNP is composed mainly of able-bodied males (72.8%) More than 50.00% of the respondents were within the active age range of 20 to 40 years, i.e. 20-30 years (26.10%) and 31-40 years (25.60%). Although some of them have alternative sources of income generation such as civil service, hunting for wild animals, fishing and trading; most of them (57.8%) have no other source of income apart from farming. Majority (53.9%) of the villagers earn less than half a million naira annually while the per capita income of the Okwangwo villagers was more than that of the Oban villagers (Table 1).

Table 1: Demographic parameters of SZCs

Variables	Okwangwo	Oban	Total	Mode
Age				
20-30	35(35.0)	12(15.0)	47(26.1)	20-30
31-40	28(28.0)	18(22.5)	46(25.6)	
41-50	22(22.0)	22(27.5)	44(24.4)	
>50	15(15.0)	28(35.0)	43(23.9)	
Total	100(100.0)	80(100.0)	180(100.0)	
Gender				
Male	64(64.0)	67(83.8)	131(72.8)	Male
Female	36(36.0)	13(16.3)	49(27.2)	
Total	100(100.0)	80(100.0)	180(100.0)	
Family size				
2-5	34(34.0)	25(31.3)	59(32.8)	6-10
6-10	49(49.0)	23(28.7)	72(40.0)	
>10	17(17.0)	32(40.0)	49(27.2)	
Total	100(100.0)	80(100.0)	180(100.0)	
Occupation				None
Farming	100(100.0)	80(100.0)	180(100.0)	
Alternatives				
Civil Service	10(10.0)	11(13.8)	21(11.7)	
Hunting	15(15.0)	7(8.8)	22(12.2)	
Fishing	8(8.0)	0(0.0)	8(4.4)	
Trading	14(14.0)	11(13.8)	25(13.9)	
None	53(53.0)	51(63.8)	104(57.8)	
Total	100(100.0)	80(100.0)	180(100.0)	
Annual Income('000₦)				<500
<500	61(61.0)	36(45.0)	97(53.9)	
500 -1,000	33(33.0)	44(55.0)	77(42.8)	
1,001- 2,000	6(6.0)	0(0.0)	6(3.3)	
Total	100(100.0)	80(100.0)	180(100.0)	
PCI (₦)	94,347	86,222	107,585	Okwangwo

Values in parentheses are percentages

Human Population Pressure in CRNP

Table 2 shows human population increase in the two divisions of CRNP could be reflected in the four local government areas that harbour the two divisions of Cross River National Park as highlighted by National Bureau of Statistics (2011). Population of people residing in Boki and Obanliku Local Government Areas of Okwangwo Divisionsurged by 28.7% and 125.5% respectively

between 1991 and 2006. Though, the population figure for Etung Local Government Area of Oban Division in 2006 was not given, human population in Akamkpa Local Government Area of Oban Division surged by 26.4% between 1991 and 2006 as adapted from the National Bureau of Statistics (2011) report.

Table 2: Population Increase in Cross River National Park

LGA	Land Mass (km ²)	1991	2006	% Population Increase
Boki	2,805.71	145,010	186,611	28.7
Obanliku	1,070.63	48,611	109,633	125.5
Akamkpa	5,049.99	118,472	149,705	26.4
Etung	823.92	80,036	–	–
Total	9,750.25	392,129	445,949	42.89

Source: Adapted from (NPC, 2011)

Occurrence of HWC in CRNP

Human wildlife conflict is experienced in CRNP by the support zone villagers. It is more in Okwangwo (100.0%) than in Oban sector (23.8%) as shown on Table 3. As shown in Fig. 2, Oban (18.8%) and

Okwangwo (76.0%) villagers experience HWC up to ten times per year, although most (76.3%) respondents from Oban division do not experience the conflict at all.

Table 3: Experience of Park Communities with HWC

Options	Okwangwo	Oban	Total
Yes	100(100.0)	19(23.8)	119(66.1)
No	0(0.0)	61(76.3)	61(33.9)
Total	100(100.0)	80(100.0)	180(100.0)

Values in parentheses are percentages

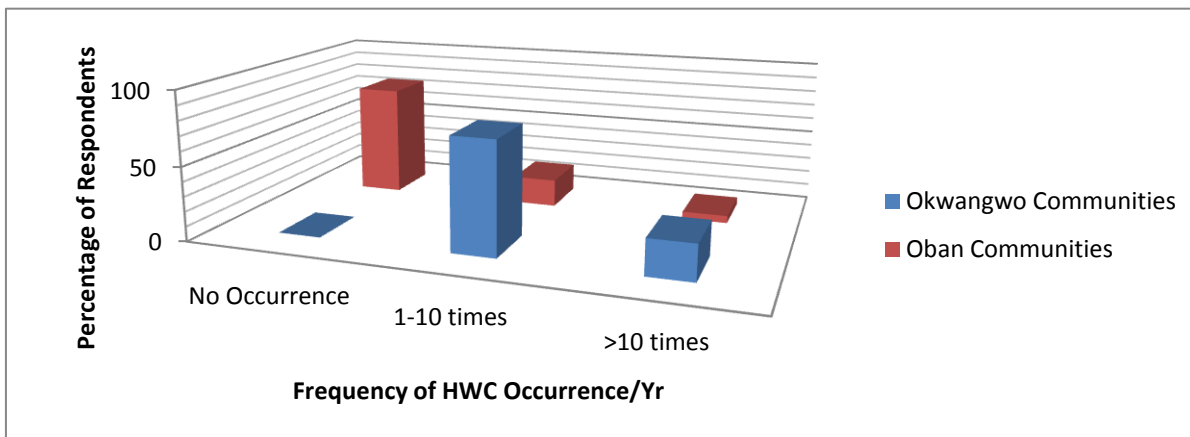


Fig. 2: Frequency of HWC Occurrence per Year in CRNP
Source: Field Survey (2016)

Effects of HWC on the Socio-economy of CRNP Communities

HWC poses some threats to CRNP communities which include death, injury, loss of livestock and loss

of crops. Loss of crops ranked highest in both Okwangwo (69.0%) and Oban (52.6%) divisions of the park (Fig. 3).

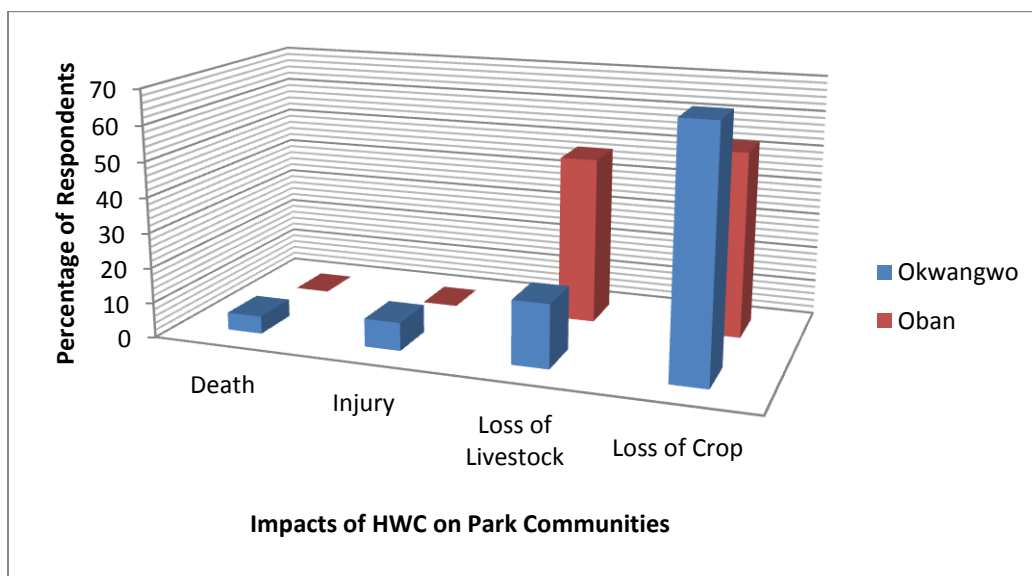


Fig. 3: Effect of HWC on Socio-economy of communities in the park Divisions

In addition, some portions of villagers’ farmlands are also being destroyed by wild animals. Proportion of

victims’ farmlands destroyed by wild animals per year is shown in Fig.4 below.

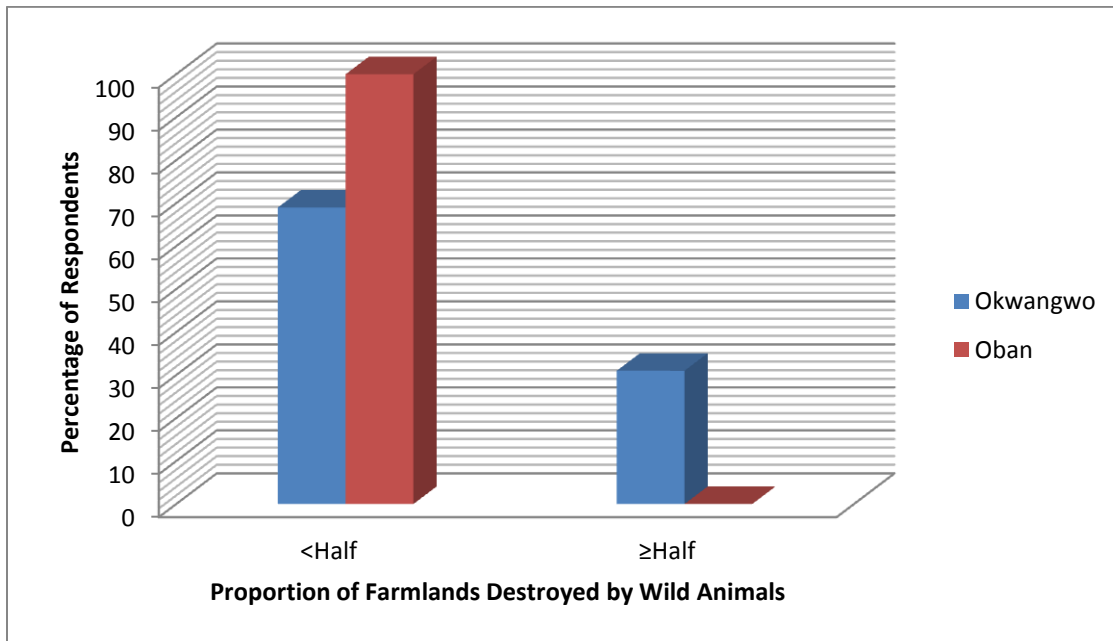


Fig. 4: Proportion of victims’ farmlands destroyed by wild animals annually in the Park

Management efforts and strategies towards curbing HWC in CRNP

There are several measures adopted by support zone community members to curb HWC. Measures taken include fencing of farm lands (19.3%); scaring wild

animals away with sound (16%); walking in group (10.9%); poisoning wild animals (10.9%); and attacking and killing wild animals (42.9%) in order to save their lives and livelihoods as presented in Fig. 5

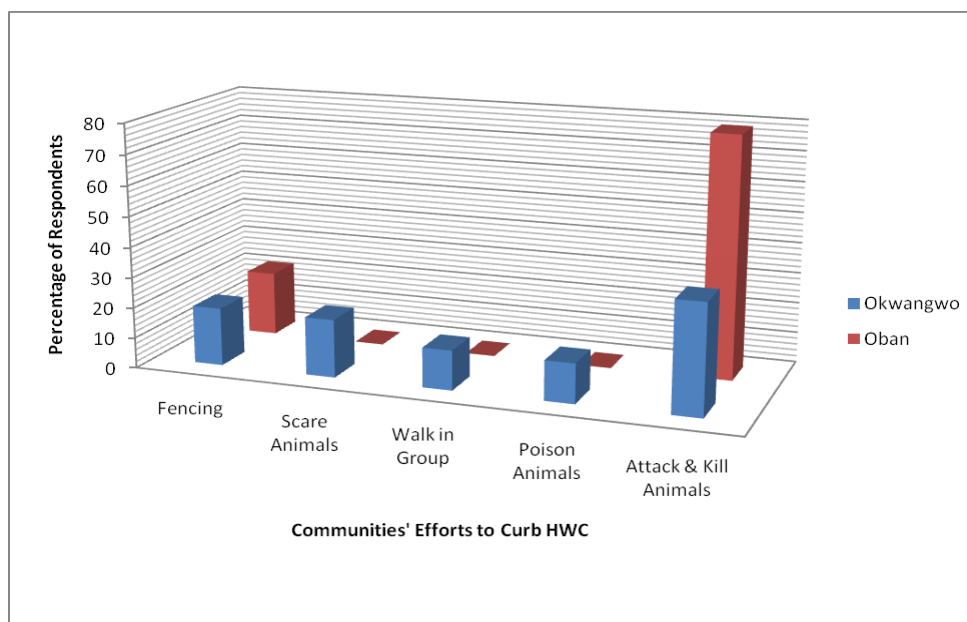


Fig. 5: Measures taken by communities to curb HWC

DISCUSSION

Involvement of Communities with the Park

The custodians of biodiversity, prior to its protection, were the sole beneficiary of the resource. Exploitation of wildlife resources of the park could not be over-emphasized as majority of the adult villagers are able-bodied strong males and armed for hunting. They only depend on yield and catch as affected by season. This is responsible for why they felt cheated and not being treated fairly by both the government and the park authorities seeing the park as being 'originally' theirs and it affects their behaviour and management approaches to HWC in the park. The unsustainable land use practices as corroborated by Enuoh (2014) could considerably reduce the populations of both fauna and flora components of the park.

Biodiversity conservation of CRNP is threatened by human population pressure. The increase in human population in the park's local government areas may not be as a result of the presence of wildlife in the areas since almost all the local government areas of the state experienced population increase. Nevertheless, it poses a threat of over exploitation of wildlife resources on the park as the communities depend majorly on the land and the park's resources for survival. The problem of human wildlife conflict is that of resource utilisation (Munyori 1992; Sindiyo 1992) within the park, hence conflict toughens as population of humans' boom in the area.

Another threat to the conservation of biodiversity in CRNP is conflicting land-use practices within and around the park. These anti-conservative land-uses include farming, hunting and fishing. Of all, unsustainable hunting, trapping and sale of animal products as source of income is the greatest threat to the park's integrity and is more than any other factor responsible for low density of anthropoid ape and other large mammals (Oates *et al.*, 2002) within the park. Other factors, as elaborated by Kiringe and Okello (2007), which threaten CRNP wildlife include loss, conversion and degradation of wildlife migration and dispersal corridors important for the protected area; unsustainable use, demand and exploitation of natural resources like water, plant resources and minerals by local communities surrounding the park; agricultural expansion and pollution of water bodies.

The support zone communities see the park as their inheritance and all they have got, hence should be allowed to exploit indefinitely. These land-use practices make the villagers come in contact and consequent conflict with wild animals which could lead to over-exploitation, over-fishing and destruction of the forest from which wild animals derive means of survival.

Loss by Communities to Human Wildlife Conflict

The conversion of vast and biologically rich forest areas of Cross River state into a national park, hitherto serving the household needs of the people, has direct livelihood impacts (Kothari *et al.*, 1998) on the support zone communities. This coupled with loss of means of livelihood to conflicts with wild animals, if not effectively and efficiently tackled, would result to lack of security of livelihood and degrading social status of the communities in the long term. Wildlife-induced damages to their properties and lives which are yet to be effectively controlled result in the communities' negative attitudes towards conservation and wildlife resources (Okello, 2005; Okello and Wishitemi, 2006). The unacceptability of the park boundaries by the SZC members (Effa, 2014) has been a major constraint to the management of HWC in the park as the land is their only means of survival. Since the establishment of the park in 1991, there has not been clear demarcation of the park boundaries on the land fuming conflicts between the park authority and the villagers. Part of Oban West Forest Reserve that was supposed to be part of the park going by the provisions of the decree is actually *Gmelina arborea* plantation established before the creation of the park (USAID, 2006).

Management Approaches to Human Wildlife Conflict

Measures adopted by the villagers to curb HWC ranges from preventive and protective mechanisms like fencing of farmlands, scaring away wild animals, walking in group, poisoning wild animals, and attacking and killing wild animals; to mitigative measures such as demand for compensation from the park authorities as gathered from the FGD held with the villagers. This is in partial conformity with the

findings of Eniang *et al.*, (2011). As explained by Kiringe and Okello (2007) illegal killing of wildlife for local and regional bush meat ranked highest across the park. This finding also corroborated the victims' display of displeasure during FGDs sections held with them. They claimed to deserve scholarships for their children as it would ease their dependence on the land and empower the generations of their children.

The varying approaches adopted display individuals' different and frequently opposing views about the proper solution to a problem. It also shows that each person's views, from his/her own perspective, could be both rational and legitimate (FAO, 1994). However, the best management approach would be that in which all relevant stakeholders (communities, park authorities government, researchers, NGOs etc.) come together, understand each other's needs, develop a range of alternatives on how to address

these needs and reach a mutually agreeable solution (USAID, 2006).

CONCLUSION

Endowment of biodiversity is an important tool for empowerment and development especially to the locals who have closest proximity with it. Its protection and conservation always comes with a level of externalities which is also mostly felt by the same people – its custodians. Support zone communities of Cross River National Park have the task of protecting the rare Cross River gorilla, *Gorilla gorilla dilehi*, which earns the park IUCN recognition. This will be possible only if their lives and livelihood; and future of their children is secured. This thus calls for attention of policy makers and intervention of local, regional and international stakeholders concerned with wildlife management to ensure sustainability of biodiversity conservation in Nigerian national parks.

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