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COLLABORATIVE INDIGINEOUS PARTNERSHIP IN BIODIVERSITY CONSERVATION: FOCUS ON CROSS RIVER NATIONAL PARK, NIGERIA

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ABSTRACT

Support Zone Communities (SZCs) involvements in Cross River National Park (CRNP) biodiversity conservation were assessed in this study. Eleven communities at 0-12km distance to the park were selected for data collection. Structured questionnaires and Focus Group Discussion were used to solicit information from community members. Data obtained were analyzed using descriptive statistics, Chi- square and correlation. Result showed that willingness to contribute to effective conservation of wildlife was high (84.4%), contributions in the forms of non-involvement in poaching (62.0%) was highest. Communities awareness of biodiversity conservation and their level of involvement in mitigating threats to biodiversity were significantly related (χ^2=12.69). Also, there was significant association between educational status (r =-0.11, p<0.05) and communities participation in threat mitigation. However, poor sensitization/mobilization (Weighted Mean=108.93) and bureaucracy (WM=106.47) were the major challenges to communities involvement in park management. Therefore, effective protection of park resources and engagement of SZCs should be the direction of CRNP to ensure sustainability.

Keywords: Biodiversity, Park, Participation, Support Zone Community, Threat

INTRODUCTION

Nigeria is rich in both flora and fauna which forms an important Centre for biodiversity of tropical rainforest (Alabo, 2008), with Cross River National Park having one of the oldest rainforests in Africa, and has been identified as a biodiversity hot spot. But already Nigeria has lost about 90% of its forest which rated it as having the highest deforestation rate (CERCOPAN, 2011). Similarly, Babagana *et al.* (2012) and Ibimilua, (2013) stated that about three quarters of the remaining flora and fauna species are threatened and many of these are being endangered due to some anthropogenic activities and natural occurrences. The rural dwellers are the major contributor to biodiversity depletion due to their farming, hunting and other illegal activities (Nathaniel and Nathaniel, 2001). These have left many governments in developing countries with the challenge of how best to conserve nature.

In the past, nature conservation strategies have been dominated by the establishment of protected areas, which is the 'classical' approach to conservation (Kamuaro, 2007), controlled by the central government (Berkes, 2004; Berkes, 2007). However, these strategies have not been very successful in conserving biodiversity and its sustainable use, as the approaches and strategies so far have not been adequate to address the scale of biodiversity loss or reduce the pressures (Butchart *et al*., 2010). Since the creation of these protected areas forced rural inhabitants to vacate part of their 'ancestral' land for the conservation of wildlife species, in many cases without compensation or providing an alternative (Adetoro *et al.*, 2011). This compelled local people to go against park rules and to harvest resources in the park (Vodouhê *et al.*, 2010). In order to change this situation, many countries are seeking ways to devolve user rights to

communities as an incentive to invest in the long term sustainable use of resources (Pailler 2005).

In recent times, the developed communities in Africa have moved from "top-down's" approach toward more participatory "bottom-up" approaches. The shift in paradigm has occurred in recognition of the fact that local cooperation, participation and management are crucial to achieving both short term development result and long term sustainability. Along the same line, the conservation community is beginning to appreciate the necessity of incorporating local participation in environmental conservation effort (Bamberger, 2006).

However, participation of local people in conservation and management of wildlife resource is a functionn of perceived benefit sharing as the drive for the local people to manage and benefit from wildlife resources within their areas of jurisdiction is now a widely accepted concept for managing protected areas in many parts of Africa and all over the world (Kipkeu *et al*., 2014).

It is therefore, imperative that the management of wildlife resources have to be inclusive and involve the local communities. This work therefore assessed the level of involvement of Support Zone Communities' in biodiversity conservation in Cross River National Park, Nigeria.

MATERIALS AND METHODS

Study Area

The study was carried out in Cross River National Park (CRNP) located in Cross River State, Nigeria. It lies between Latitude 5° 05' and 6° 21'North and Longitude 8° 15' and 9° 31' East. The Cross River National Park covers a total area of 4000km² and is segmented into two non-contiguous divisions; the Oban hills in the southern part covering 3000km² and the Okwangwo division in the northern part covering 1000km². The Park ecosystem consists of primary moist tropical rainforests in the north and central parts, while the southern parts contain mangrove swamps on the coastal zones. The Cross River National Park has one of the oldest rainforests in Africa, and has been identified as a biodiversity hot spot (CRNP, 2008).

Worldwide, indigenous communities in forested areas are low income earners who build their economic activities around forest extraction such as hunting of animals, forest-based farming, timber logging, gathering of building materials, materials for local craft, medicinal herbs and plants and non-timber forest products (NTFPs) such as leaves, fruits and honey (Bassey and Obong, 2008).

Cross River National Park, Okwangwo Division is populated by sixty-six communities that are largely dependent on access to rainforest resources for their livelihood. The park area is inhabited by four ethnic identities; Utanga/Bechebe, Okwa, Okwangwo and Boki people. Each ethnic group traces ancestral origins to separate locations in Mamfe, Utanga and Nkanje communities in the Cameroon Republic (Ewah, 2000).

Data Collection

A set of questionnaire was administered to members of the support zone communities using a multistage sampling technique to select respondents. Information elicited were the contribution of the communities towards park protection, their level of involvement in park management and also their level of awareness of park rules, regulations and penalties for offenders. Based on closeness to the park, (distance between 0-12 km) eleven communities (Four from Oban division and Seven from Okwangwo division) was selected from the 105 support zone communities (Figure 1). This represents 10% of the communities bordering the park. The sample size for the study was 374, which was determined from the total population of 19,493 for the selected communities using krejcie and Morgan (1970) method of sample size determination (Table 1).

Also Focus Group Discussion made up of 8 - 12 persons /group was conducted in the support zone communities visited. Participants in the focus group discussions were community leaders. The discussion was centered on threats to park resources, community's level of participation in park protection as well as suggestions on ways to curb threats.

Responses of the respondents on challenges hindering participation designed according to five Likert's scale were converted (i.e. strongly agree - 5, agree - 4, no opinion - 3, disagree - 2 and

strongly disagree – 1), weighted (Equation 1), and then subjected to Gross Arithmetic Mean computation (Equation 2)

Weighted mean = $\sum_{i=5}^{n} \frac{w_i * x_i}{n}$ ……. Equation 1

Where,

w = Weights (5 Likert's scale)

x = Number of responses to each weight of an item

n = Sum of all weights

Gross Arithmetic Mean = $\sum_{-}^{n} \frac{w_i}{n}$ …..Equation 2

Where,

w = Sum of weighted means of all item Weights

n = Number of items

Data obtained were analyzed using descriptive (charts, frequencies and tables) and inferential (Chi-Square and Pearson's correlation) tools with the aid of Statistical Package for Social Scientists (SPSS 22.0).

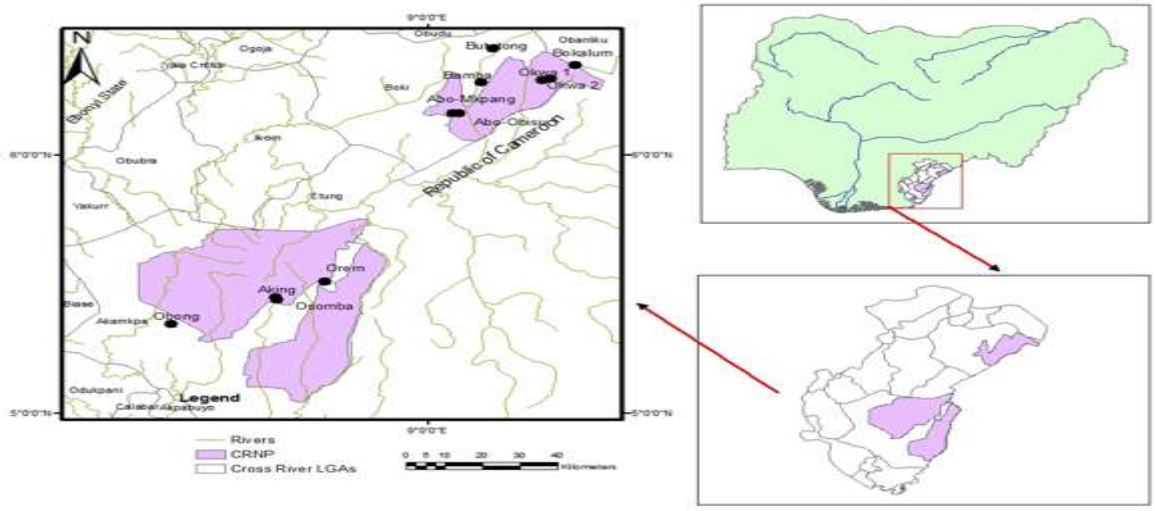

Figure 1: Map of CRNP showing the selected Communities in Okwangwo and Oban divisions

Table 1: Sample Population of the Communities Bordering CRNP

S/N	Communities	1991	1996	2001	2006	2011	2016	Sample Size
	Oban Division							
1.	Aking	1614	1856	2134	2454	2822	3245	62
2.	Osomba	471	542	623	716	823	947	18
3.	Orem	471	542	623	716	823	947	18
4.	Obung	1221	1404	1615	1857	2136	2456	47
	Okwangwo Division							
5.	Butatong	1566	1801	2071	2382	2739	3150	61
6.	Okwa 1	609	700	805	926	1065	1225	24
7.	Okwa 2	783	900	1035	1190	1369	1574	30
8.	Bokalum	957	1101	1266	1456	1674	1925	37
9.	Bamba	783	900	1035	1190	1369	1574	30
10.	Abo-Obisu	522	600	690	794	913	1050	20
11.	Abo-Mkpang	696	800	920	1058	1217	1400	27
Total		**9693**	**11146**	**12817**	**14739**	**16950**	**19493**	**374**

Source: Adopted and modified from CRNP Support Zone Development Project Plan 1991.

RESULTS

Level of Communities Involvement in Biodiversity Threat Mitigation in CRNP

Awareness about biodiversity conservation was high in the communities as revealed in Figure 2 and majority of the respondents (84.4%) were willing to contribute towards effective management of wildlife resources in the park (Figure 3). Their contribution included working in the park (14.8%), giving information to park management (20.9%), by not poaching (62.0%) (Figure 4). In addition, (80.0%) of the respondents were of the opinion that the park management do not seek community audience often for effective management of the park (Figure 5).

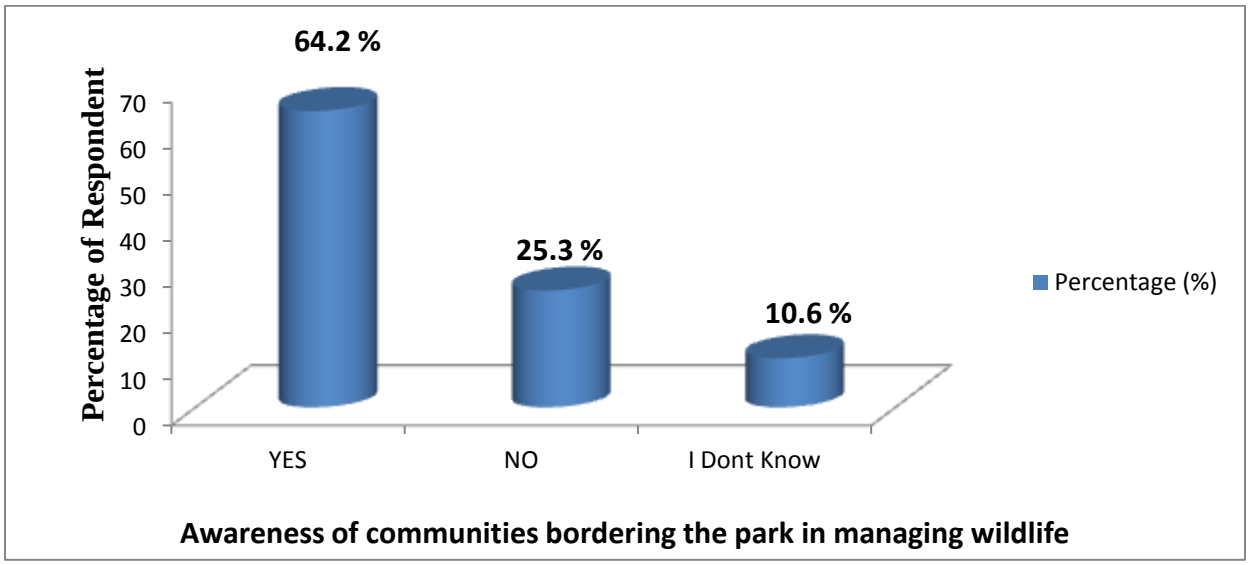

Figure 2: Awareness of Communities Bordering the Park in Managing Wildlife

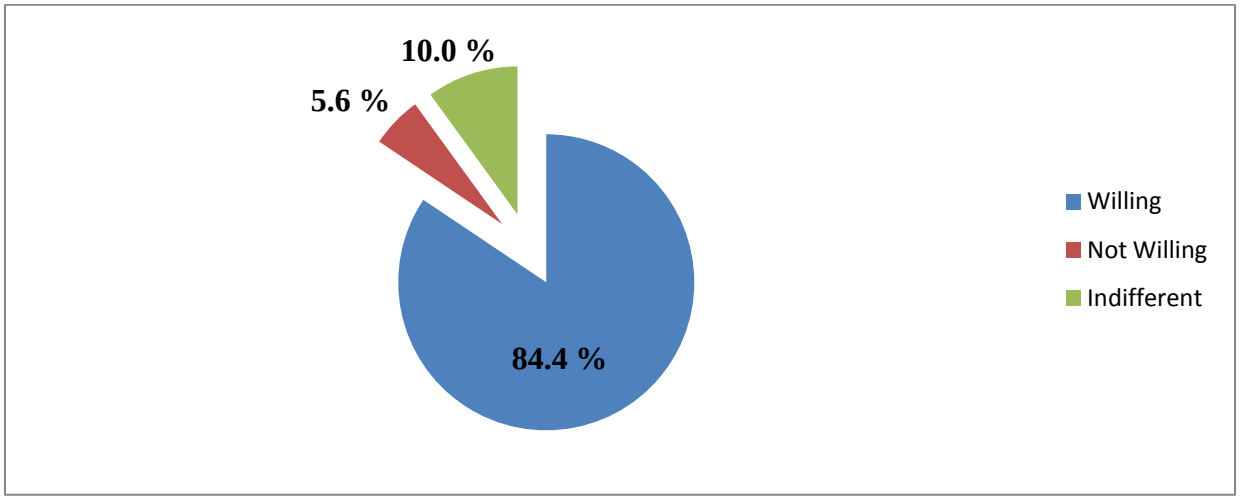

Figure 3: Willingness of Communities to Contribute Towards Effective Management of Wildlife Resources in CRNP

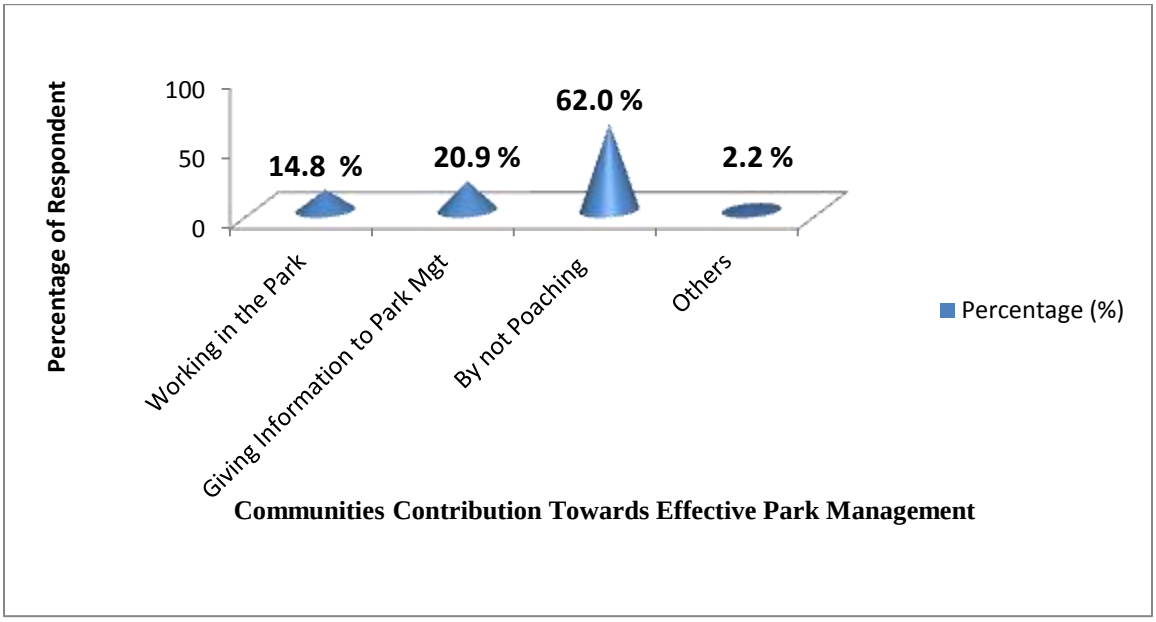

Figure 4: Communities Contribution Towards Effective Park Management

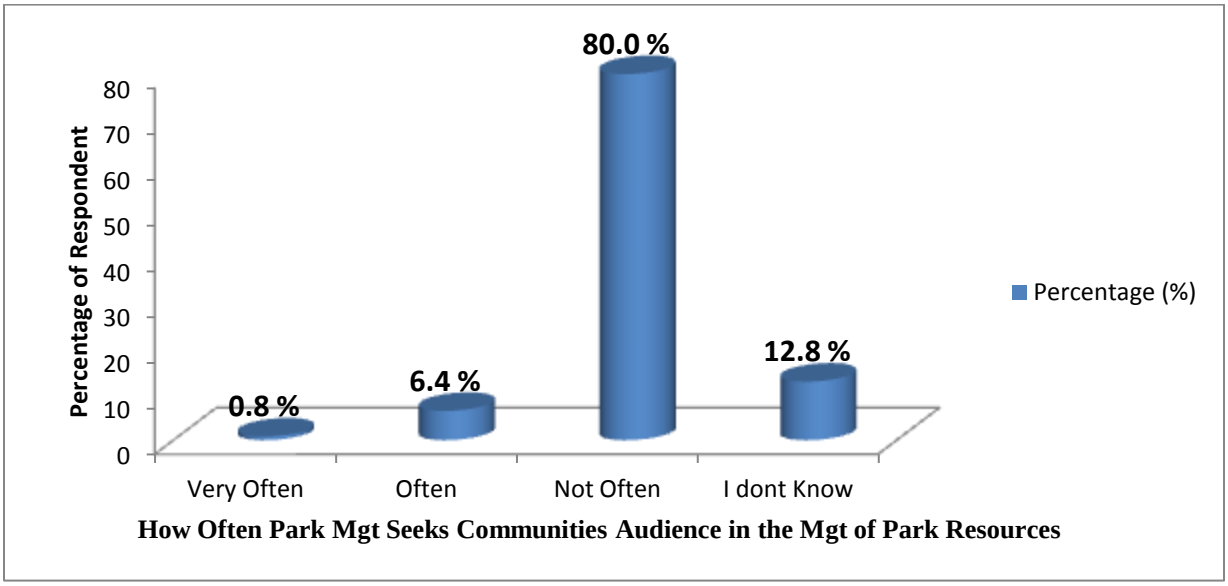

Figure 5: Frequency of Park Management in Seeking Communities Audience

Test of Hypothesis

The chi-square analysis (Table 2) shows that there was significant association between the communities' awareness of biodiversity conservation in the park and their level of involvement in mitigating threats (χ^2=12.69, $p<0.05$). Also, there was significant association between educational status (r =-0.11, $p<0.05$) and communities participation in mitigating threats in CRNP (Table 3).

Table 2: Association between communities' awareness of biodiversity conservation in the park and their level of involvement in curbing Threats

Variables	χ^2	df	Sig	Decision
Awareness and Participation level	12.69	4	0.01	Significant

*Significant at $p<0.05$

Table 3: Association between demographic characteristics of communities' respondents and their participation in curbing threats to biodiversity in CRNP

Variables	r	Sig	Decision
Gender	0.03	0.64	Not Significant
Age	0.09	0.10	Not Significant
Educational Status	-0.11*	0.03	Significant
Occupation	0.03	0.54	Not Significant
Estimated Income	-0.07	0.16	Not Significant

**Significant at p<0.05*

Challenges Confronting Communities Participation in Park Management

The study found out that poor sensitization /mobilization (Weighted Mean = 108.93), bureaucracy (WM=106.47) and poverty (WM=78.33) were the major challenge facing communities participation in park management (Table 4). This was corroborated by discussions held with the community leader who berated the park management for reneging on their promises of providing alternative livelihood and provision of basic amenities. Majority of them were of the opinion that since the World Wildlife Fund for Nature (WWF) handed over to the CRNP management all the benefits they were deriving ceased. In one of the communities visited (Bamba Community) one of the community leader stressed the need to re-strengthen the community's participation in park management as it was during the time of WWF by reconstituting the Support Zone Development Association (SZDA). In Bokalum community, they were of the opinion that the park should continue with the alternative livelihood programmes such as goat farms, piggery, fisheries, and bush mango distribution to support zone communities as it was done when the park was created.

Table 4: Challenges Confronting Community's Participation in Park Management

Challenges	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Weighted Mean	Decision (GAM=83.05)	Rank
Poor Sensitization/Mobilization	243 (67.1)	85 (23.5)	16 (4.4)	13 (3.6)	5 (1.4)	108.93	*	1st
Bureaucracy	226 (62.6)	87 (24.1)	31 (8.6)	9 (2.5)	8 (2.2)	106.47	*	2nd
Poverty	110 (30.6)	60 (16.7)	68 (18.9)	59 (16.4)	63 (17.5)	78.33	ns	3rd
Time and Nature of Work	32 (8.8)	25 (6.9)	119 (32.9)	82 (22.7)	104 (28.7)	59.00	ns	5th
Unfriendly Nature of Park Management	47 (13.1)	41 (11.4)	100 (27.8)	67 (18.6)	105 (29.2)	62.53	ns	4th

Key: GAM denotes Gross Arithmetic Mean; Value greater than the **GAM** are accepted and vice versa.
** signifies that there is a significant challenge confronting communities participation in park management (Weighted mean > **GAM**) while ns signifies that the challenge confronting communities participation in park management is not significant (Weighted mean < **GAM**). Values in bracket are in percentage (%)*

DISCUSSION

SZC Awareness and Involvement in Mitigating Threats to Biodiversity in CRNP

Education, awareness and sensitization activities are highly significant and play vital roles in building support for protected areas in general and for particular management actions (Dudley *et al*., 2004). A study by Ormsby and Kaplin, (2005) in Masoala National Park in Madagascar found that 93% of residents living near the park were aware of the existence of the park and expressed positive opinions about the park, attributing this to the education and awareness programmes that the park administration had provided. The case is not different in CRNP as communities' involvement in mitigating biodiversity threats was heightened by their awareness of biodiversity conservation in the park. This underscored the willingness of majority of the respondents to contribute towards effective management of wildlife resources in the park (Figure 3). Also, educational status of respondents and participation in mitigating threats in CRNP were significantly related. This corroborates the findings of McClanahan *et al.* 2005 stating educational status as one of several factors that influence local people's attitude towards nature conservation and land use.

However, community participation in CRNP management is still very low as majority of the respondents (80.0%) stated that the park management do not seek communities audience in the management of park resources and therefore they do not participate in the management of resources in the park. This corroborates the findings of Jacob and Ogogo (2011) which reported that 74% of the people living around Cross River National Park claimed not to be involved in the management of the park. Ezebilo and Mattsson, (2010) reported that for sustainable conservation of National Park to be attained it requires the empowerment of the local communities so as to reduce their obstruction of the implementation of park management programmes. This is because local people are more likely to offer full support for wildlife protection if they perceive direct benefits from the national parks (Milner-Gulland *et al.*, 2003). This is also supported by Marguba (2002) who opined that the introduction of support zone community programmes would enhance biodiversity management and conservation efforts in Nigeria's National Parks. The support zone communities claimed to contribute towards the effective management of CRNP by desisting from poaching, giving information to park management as informants and working in the park. This supports the findings of Ijeoma and Ogbara, 2013 on the claim of non-encroachment by of members of the community into the park as enough contribution towards effective management of KLNP. This is because they are aware that effective management of the park can hardly be achieved without the cooperation of the communities bordering the park

Challenges Confronting SZC Participation in Park Management

Bureaucracy, poor sensitization of community members and poverty were hindrances to their participation in the management of CRNP. The community leaders berated their inability to get audience with the park management on several occasions as they lack the financial power and influence to wade through the bureaucratic processes in getting to those in authority within the park management. One of such occasion was when farmlands in Abo-Mkpang community was destroyed by elephants; several letters were written and even a video tape showing the extent of damage was sent to the national park management without any response. Similar situation where animals destroy households' crops without compensation has been reported in Gashaka Gumti national park (Eniang *et al*., 2011) and Pandan Wildlife Park (Ijeomah and Emelue, 2009). Also, SZC leaders were disgruntled that they were not given the opportunity to be part of the management of the park despite their voluntary contributions to conservation of resources in the park. This corroborates the finding of Ijeoma and Ogbara, (2013) that stated the unhappiness of host communities in Kainji Lake National Park for not been given the opportunity to participate in park management. However, they were optimistic that with continuous agitation, park management would do the needful by involving them in the management of resources within their jurisdiction.

CONCLUSION

Evident from this study is the willingness of SZCs in CRNP to participate in the management of biodiversity regardless of their non-involvement by park management. However, SZCs are aware of the need for biodiversity conservation and still contribute to management of resources in the park by not poaching and giving information to park management. This is despite the challenges of bureaucracy and poor sensitization faced by the SZC from participating in managing resources in the park. The involvement of community in park management should not be taken for granted as effective management of the park can hardly be achieved without the cooperation of the communities bordering the park. Therefore, conservation of biodiversity by ensuring full protection of park resources and empowerment of support zone communities should be the direction of CRNP to ensure sustainability of the natural resources being conserved in the park.

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