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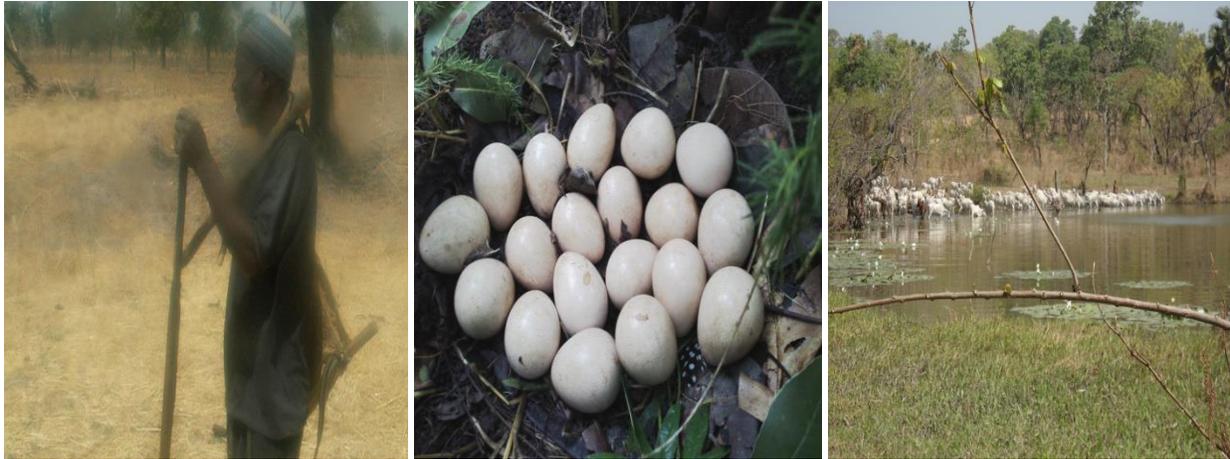
Anthropogenic activities in Pandam Wildlife Park: Do breeding birds benefit from cattle grazing and poaching?

Samson Andrew Da'an
Zoology Department,
University of Jos, Nigeria

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Final Report submitted to The Rufford Foundation

By

Samson Andrew Da'an

Cover photos: A poacher, eggs of Helmeted guinea fowl (Numida meleagris) and cattle in Pandam Wildlife Park

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1.0 INTRODUCTION AND BACKGROUND OF THE PROJECT

Biodiversity rich areas are increasingly surrounded by growing human populations with attendant pressures especially in developing countries (Mwanfupe, 1998; Joppa, 2012). Excessive anthropogenic activities such as poaching, livestock herding, fuel wood collection, farm encroachment, logging and bush burning causes distortion in the equilibrium of ecosystems (Connell and Slatyer 1977, Pickett *et al.,* 1992). For example, Livestock grazing has been identified as a major driver of ecosystem change and has been associated with significant declines in various bird species in Britain and worldwide (Vickery *et al.,* 2001; Evans *et al.,* 2006). While illegal human activities conducted in any protected area are punishable by appropriately laws, biodiversity is often affected adversely by such activities (e.g. Shanthikumar and Atilola, 1990) for example, buffalo populations were reported to have crashed at the Yankari Game Reserve-Nigeria in 1981 as a result of infection from cattle grazing in the Reserve (Mohammed *et al.,* 2010).

The overall effect of high density anthropogenic activities is biodiversity loss (Evans *et al.,* 2006; Emma-Okafo *et al.,* 2009; Abdu-Raheem and Worth, 2013). Although it has been opined that rural communities dwelling around biodiversity areas utilize wildlife resources more sustainably than the civilized urban dwellers (Fernández-Baca and Martin, 2007; Githiru, 2007), it is unsustainable to use such resources as basic source of livelihood support by these growing populations around biodiversity areas. However, it is increasingly becoming very clear that for conservation to succeed through the protected area system in the future, there must be collaborations at different levels with indigenous people around protected areas (Fernández-Baca and Martin, 2007; Kothari, 2008; Anne *et al.,* 2010).

Several anthropogenic activities have been reported in Pandam Wildlife Park (PWLP) such as Livestock grazing, Poaching, bush burning, logging and fire wood collection (Ezealor, 2002; Dami and Manu, 2008), however, the relationships between these activities and the ecology of wildlife species both fauna and flora has remained largely uninvestigated. Therefore, the project was aimed at investigating the impacts of cattle grazing and poaching on breeding birds in Pandam Wildlife Park (PWLP), assessing socio-economic status and activities as well as source of animal protein of communities around PWLP as these may be important in understanding the dynamics of the ongoing human activities; since Livelihood support activities have also been known to be key drivers of human activities in protected areas (Robert and Brian, 2006).

2.0 METHODOLOGY

2.1 Study area

Pandam Wildlife Park (08°40'N 09°03'E) is among the thirty (30) Important Bird Areas (IBAs) of Nigeria. PWLP belongs to the Plateau State Government of Nigeria and is managed by the Plateau State Tourism Cooperation (PSTC), it is located beside the Lafia-Shendam road to the north of the Benue River and covers an area of 22,400 ha and an altitude of 175-315 m *a.s.l* (Plates 1 and 2). The wet season lasts from April to October and annual rainfall is 1000-1500 mm (Ezealor, 2002; Akosim *et al.,* 2007, Dami and Manu, 2008).

Over 217 bird species have been recorded in the Park including a few observations of Lesser Kestrel *Falco naumani,* Yellow-casqued Hornbill *Ceratogymna elata*, Pel's fishing-owl *Scotopolia peli* and Long-toed Lapwing *Vanellus crassirostris* known to breed in the park. Large flocks of White faced whistling ducks *Dendrocygna viduata* spend the dry season on the lakes in the Park especially the Pandam Lake. Other mammals of global conservation concern that occur or used to do so include: Hippopotamus *amphibious*, Buffalos *Syncerus caffer,* Roan antelope *Hippotragus equinus* and African manatee *Trichechus senegalensis*. The vegetation of the park is Sudan-Guinea Savanna with gallery forest in riparian areas. Trees in the savanna include *Burkea Africana-Combretum* woodlands in the south, *Detarium microcarpum-combretum* woodlands in the central area and *Isoberlinia doka* woodlands to the north. Other trees include *Parkia biglobosa, Daniella oliveri and Butyrospermun paradoxum*. Tree species of the gallery forests include *Afzelia africana*, *Ceiba pentandra* and *Rafia sudanica* (Ezealor, 2002).

Plates 1 (Up) & 2 (below): Satellite images of Africa showing the location of Nigeria and Plateau State and that of Nigeria, Plateau state and the study site-Pandam Wildlife Park.
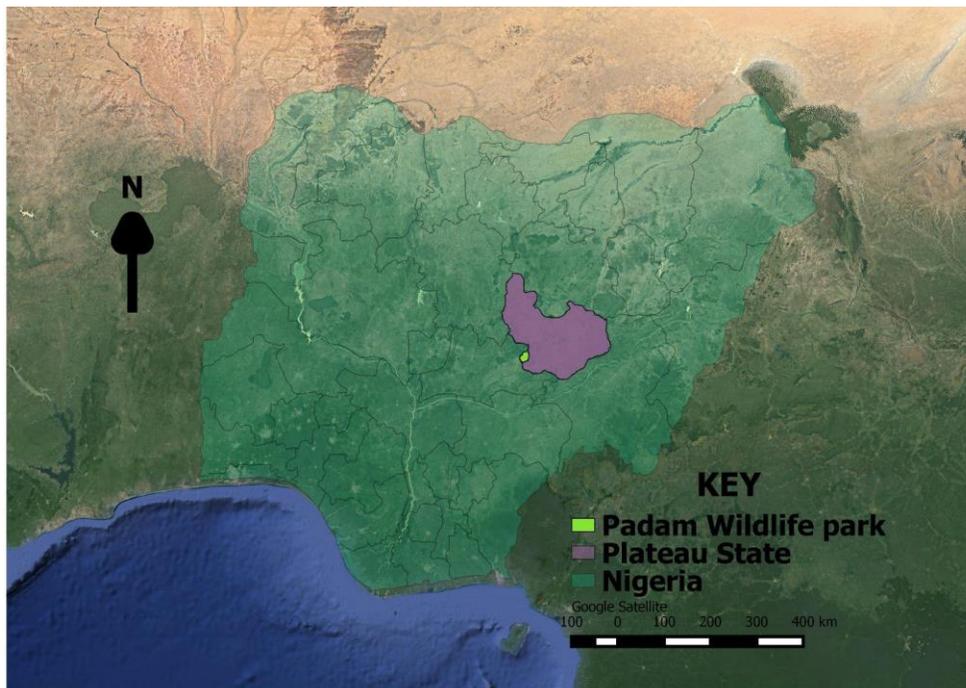
2.2 Data collection on bird breeding, cattle grazing and poaching
The line transect technique and the long standing technique (*c.f.* Martin & Guepel 1993; *c.f.* Bibby *et al.,* 2000) were used to find nesting sites of ground nesting birds. Five (5) transects of 2000 m each were placed systematically across different habitat types in the Park. The transects were walked slowly and observed for birds exhibiting breeding behaviors such as carrying of nesting materials, mating, sighting of nest(s) and or eggs. Where any of these was seen, such was marked using the Geographical Positioning System (GPS). Points where grazing activities were seen were marked using the GPS; points where poaching activities were observed where noted relative to the nearest human community to the Park. This data was collected in both wet and dry seasons.

2.3 Identifying sources of livelihood of locals
Communities around PWLP were visited and structured questionnaires administered, interviews were conducted in cases where individuals could not read or write. The questionnaires were used to asses among other things educational status, occupation, sources of animal protein (source of meat) and sexes of the respondents.

2.4 Meeting, Seminars and workshops
Meetings were held with the Park's Management, Management and staff, Management, Staff, community leaders and other stakeholders of PWLP. Seminars were presented to Management and staff of PWLP.

3.0 RESULTS AND DISCUSSION

3.1 Bird breeding, cattle grazing and poaching activities

Data were collected from five transects of 2000 m long each in the dry season between November 2015 and March 2016. Bird breeding activities, cattle grazing and poaching activities were recorded along the transects; prominent among bird breeding activities were nesting of Stone partridge *Ptilopachus petrosus* and Spur-winged lapwing *Vanellus spinosus*, also a record of more than 20 nesting grounds of some water birds. Three active nests of *Ptilopachus petrosus* and one of *Vanellus spinosus* were recorded, however, none of the eggs survived till hatching, these were most likely poached or predated by humans or other animals.

Between April and September 2016 (wet season), a repeat of data collection on bird Breeding, cattle grazing and poaching activities was done along five transects of 2000 m each; Bird breeding activities: Two active nests of Helmeted guinea fowl *Numida meleagris*, one active nest of African Jacana *Actophilornis africana* and one nest of Senegal thick knee *Burhinus senegalensis* were recorded. Other tree nesting species recorded were: Three active nests of African thrush *Turdus pelios*, one active nest of Senegal coucal *Centropus senegalensis* and one nest of Western grey plantain eater *Crinifer piscator*. Eighteen northern red bishops *Euplectes franciscanus* and five Pin-tailed whydahs were recorded in breeding plumages; Bronze manikin *Spermestes cucullata* and Weavers *Ploceus spp* were recorded carrying nest materials.

A map of data points of bird breeding activities and cattle grazing activities was produced (Plate 3). The map shows an overlap between points of bird breeding activities and points of cattle grazing activities, this probably shows that cattle grazed areas are also utilised by breeding birds. There were higher records of cattle grazing activities in the dry than wet season and records of more bird breeding activities in the wet than dry season. Generally, fewer breeding activities were recorded where more grazing activities were observed especially at the western part of the

reserve around Gallo; conversely, more breeding activities were recorded where fewer cattle grazing and poaching activities were observed at the eastern part around Gungkarogom. The predominant poaching activity recorded in the study was hunting of animals by shooting with den guns. Relative to human settlement, more gun shots were recorded near Kayarda and Namu than all other sites.
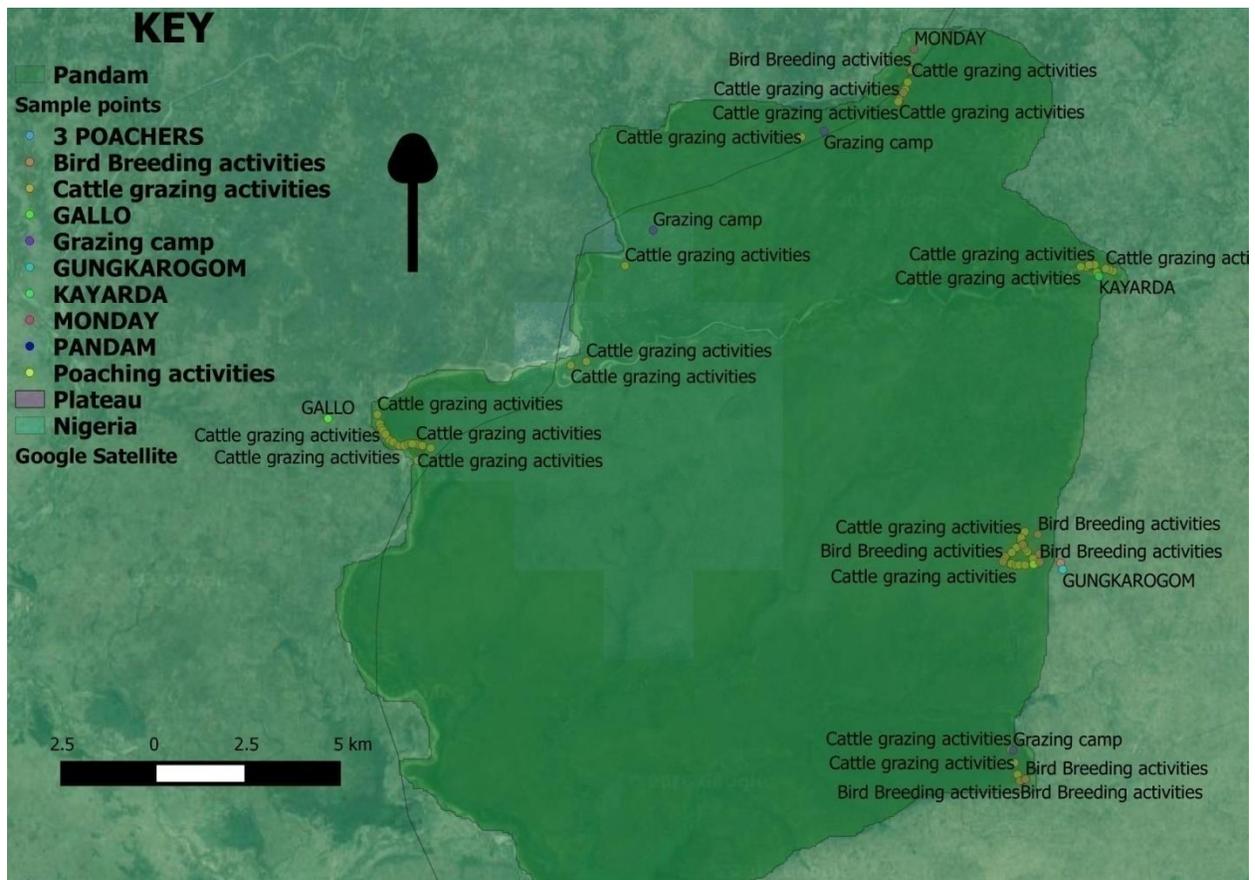
Plate 3: Satellite image of Pandam Wildlife Park showing data collection points

3.2 Identifying sources of livelihood of locals

100 questionnaires and interviews were administered in five communities surrounding Pandam Wildlife Park (PWLP) with 100% responses obtained. The communities where questionnaires were administered were: Pandam, Gunkaroghom, Kayarda, Monday and Gallo. Level of education in each community was considered in terms of formal education and assessed at least

to primary school; Gunkaroghom community had the highest number of those that have one form of education or the other while Gallo had the highest number of those that had no type of formal education (Figure 1). The occupation of most of the respondents was farming (40%) while the occupation with the least number of respondents is fishing (1%) (Table 1). Populations of respondents that depended on bush meat as source of animal protein was 42% while those that depended on other sources was 58% (Figure 2), however, most of the respondent were from Gallo (29%) and the fewest were from Gungkaroghom (Figure 3). 83% of the respondents were males while 17% were females (Figure 4).
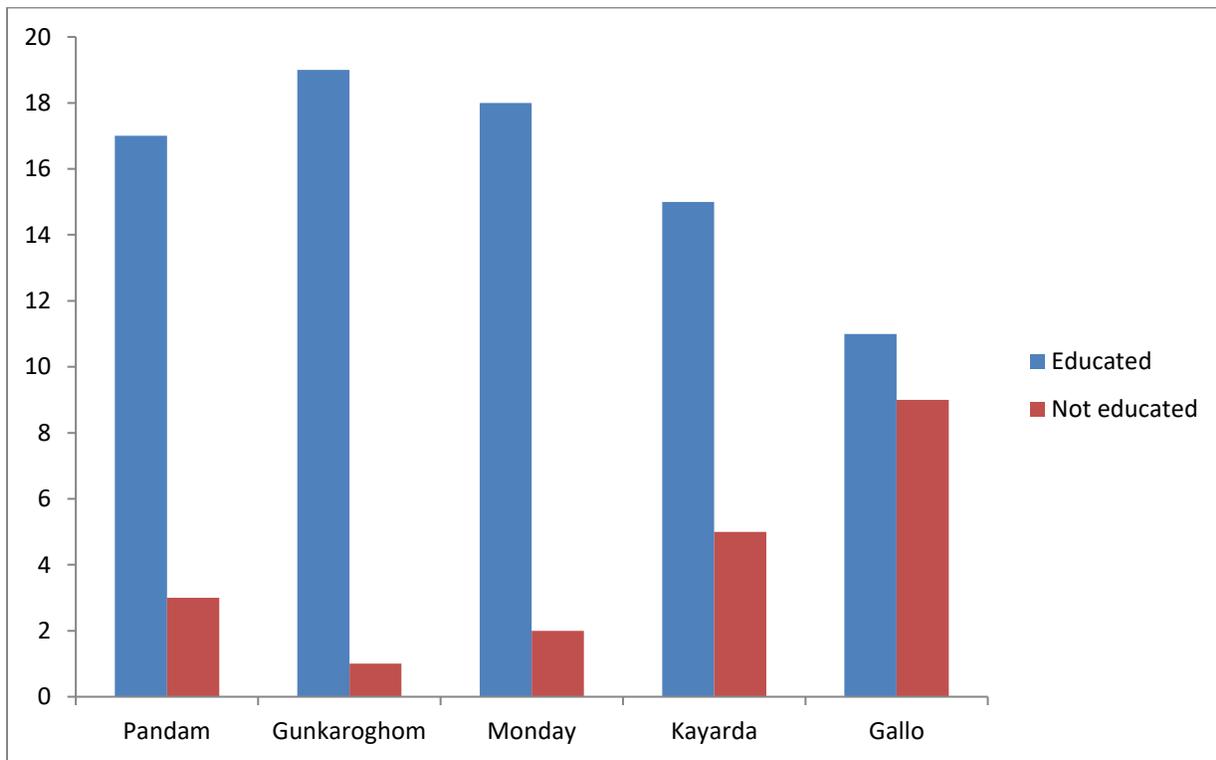
Figure 1: Educational status of respondents in each of the communities

Table 1: Occupation of respondents in each of the communities

Community	Hunter	Civil servant	House wife	Business	Applicant	Farmer	Student	Cattle herder	Fishing
Pandam	2	3	1	5	1	5	2	0	1
Gunkaroghom	0	5	0	0	0	12	3	0	0
Monday	1	4	1	4	1	5	4	0	0
Kayarda	2	2	0	1	0	6	9	0	0
Gallo	0	1	0	4	0	12	1	2	0
% Total	**5**	**15**	**2**	**14**	**2**	**40**	**19**	**2**	**1**

Percentages of Meat protein Source

Bush meat 42%

Other sources 58%
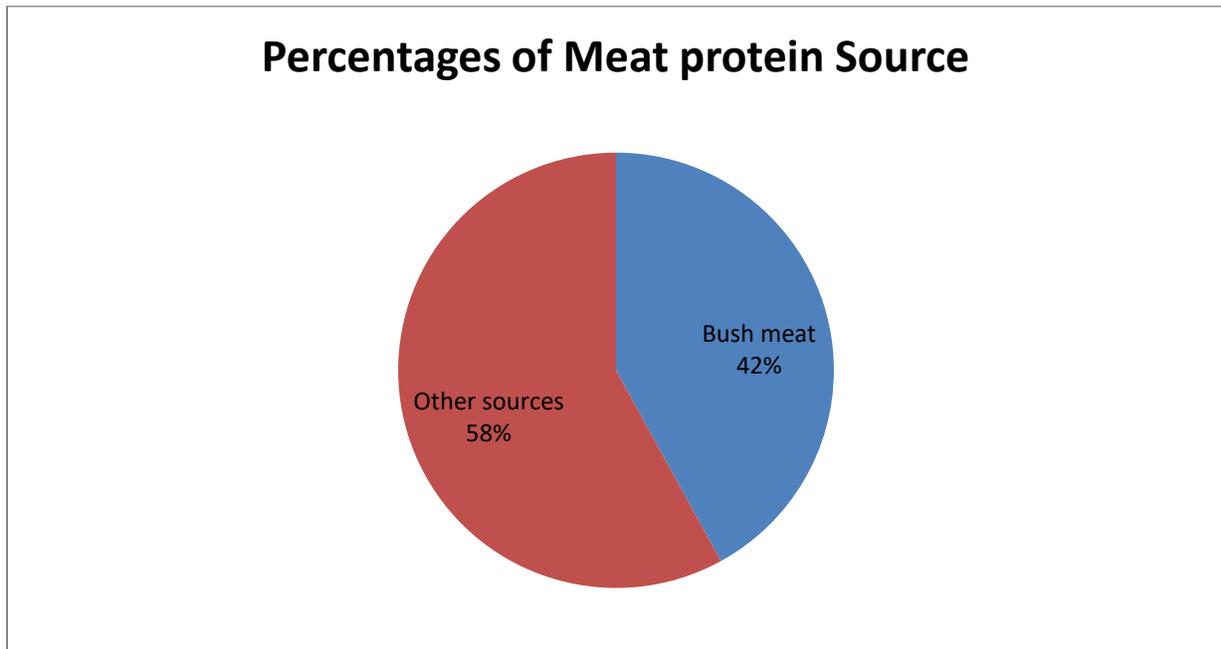
Figure 2: Proportion of animal source of protein of respondents
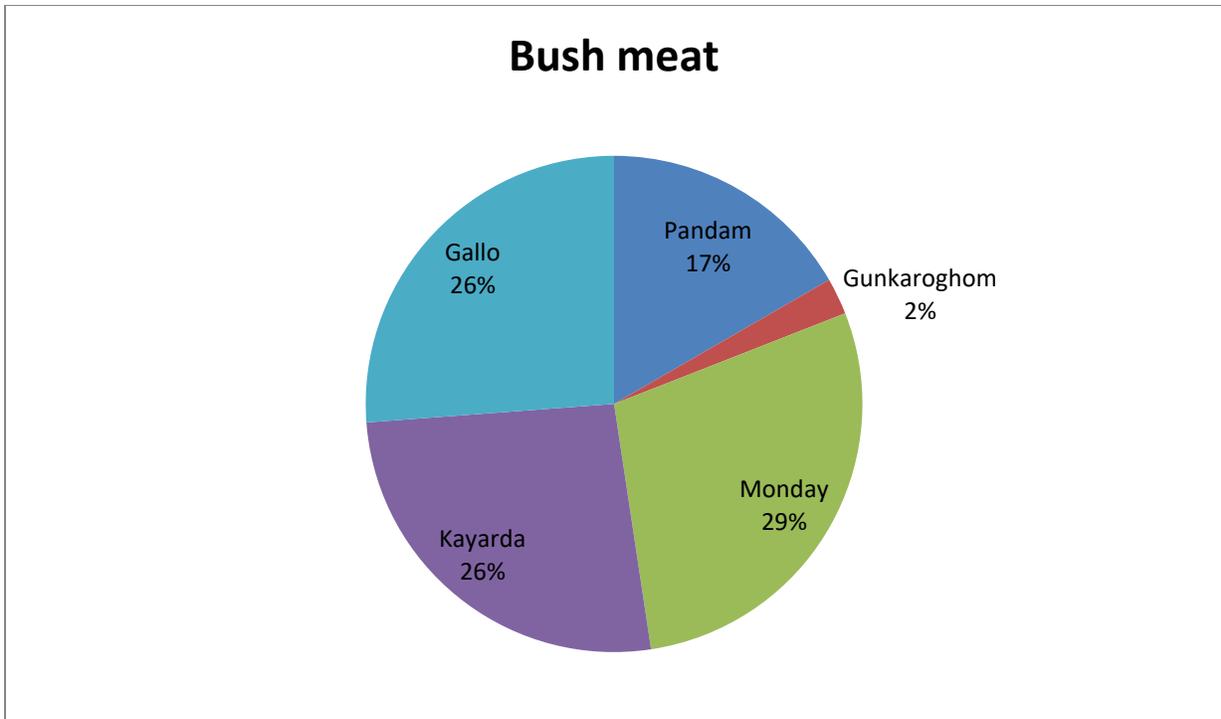
Bush meat

Figure 3: Proportion of bush meat source of protein in each community

Female to Male ration in the study population
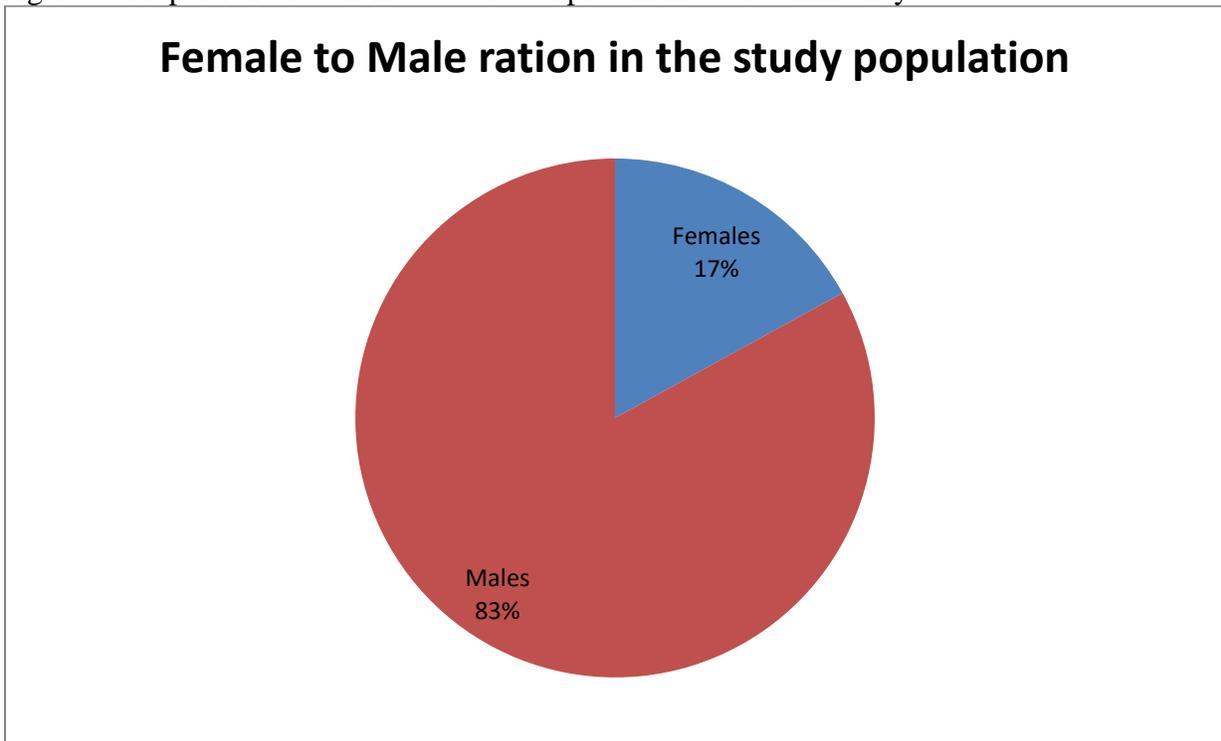
Figure 4: Proportion of Male to female respondents.

It is worth noting that Gallo had the highest number of uneducated respondents, highest number of farmers alongside Gungkaroghom and second highest number of respondents who depended on bush meat as source of animal protein alongside Kayarda. Also, Gungkaroghom which had the highest number of educated and the least number of uneducated respondents also had the least number of respondents who depended on bush meat as source of animal protein. The trend of responses from the surrounding communities is related in a number of ways to results obtained in 3.1 above. For example, more bird breeding activities were observed at Gungkaroghom and Pandam where there were less grazing and poaching activities while less bird breeding activities were observe at Gallo, Monday and Kayarda where more Cattle grazing and poaching activities were observed. These results suggest that socio-economic activities of the surrounding communities can be good predictors or reflectors of the type of anthropogenic activities that takes place in the Park.

3.3 Meetings Seminars and workshops
A meeting was held with different stakeholders of Pandam Wildlife Park, this included leaders of Communities around the Park, Plateau state Forestry Officers, Representative of security operatives and Pandam Wildlife Park management and staff. Key findings from the research project were presented to the stake holders and their inputs were obtained.

It was reported to the stakeholders that PWLP is an important habitat to bird species as they have been encountered breeding throughout the year, that human activities have been observed actively going on in the Park and that it understood that most of the perpetrators are people in their communities or under their leadership in one way or the other; also that these activities were observed to be more in the dry than wet seasons.

Participants made very meaningful inputs, the main consensus being employment of more personnel for the protection of the Park giving consideration to people living in the surrounding communities. Stakeholders, particularly the community leaders complained of being left out in the dark about the activities of the park and that they should be carried along, they however, unanimously agreed to give full cooperation to the PWLP management and staff but tasked the personnel to be professional about their jobs and follow strictly the ethics of the job.

Working together with communities and stakeholders of protected areas has proofed to be a formidable strategic partnership in addressing demographic trends that affects conservation (De Sherbinin and Freudenberger 1998). This can be seen in several countries such as Costa Rica, India and Nepal (Carlos *et al.,* 1998); this can be replicated in Nigeria giving the needed cooperation between stakeholders.

4.0 CONCLUSION AND RECOMMENDATIONS

The research shows that Pandam Wildlife Park is an important breeding destination for the avian fauna as it as has been designated an IBA (Ezealor, 2002), hence, an indicator of hope (ICPB, 1992) for other faunal taxa that are shy or extirpated due to poaching and/or other human activities. However, it is also clear that there are high cattle grazing activities in the Park particularly in the dry season. It has also been established that many of the people in the surrounding communities are willing to support conservation efforts of the Cooperation but need Conservation Education; also a provision should be availed to them for participation in the activities of the Park. In the light of the above, the following recommendations are hereby made:

1. More Patrols are needed around Gallo, Kayarda and Gungkarogom to check the activities of cattle grazers and poachers.

2. The Park's management should work more closely with surrounding communities especially the Leaders.

3. Surrounding communities should be massively and thoroughly given Conservation Education.

4. More training and re-training should be provided for personnel to cope with current challenges of protected area management.

5. Government should urgently employ more staff with consideration of locals in the surrounding communities to be deployed in good numbers at the guard posts around the Park; also provide functional work equipment and gadgets for effective patrols.

6. Staff morale should be boosted with more incentives to provide for effectiveness and ethical discharge of duties.

Acknowledgement

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Photo Gallery

The Park's Manager with his assistant by the left, team leader (Samson Andrew Da'an), team member (Musa Jidangkat) at the stakeholders meeting.

Participants making their contributions during the meeting

All participants at the meeting

Management of PWLP with some staff after a workshop