



AARDVARK (*Orycteropus afer*) TRADING, UTILIZATION AND IMPLICATION ON CONSERVATION IN BORGU LOCAL GOVERNMENT AREA OF NIGER STATE, NIGERIA

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ABSTRACT

Aardvark *Orycteropus afer* is the only living species of the order Tubulidentata, a medium-sized, stocky, burrowing, nocturnal mammal with porcine snouts native to Africa. There is a paucity of literature on the indigenous knowledge, trade and utilization of the Aardvark (*Orycteropus afer*) in the study areas. The implication of this shortage can affect conservation and sustainability of the species. Purposive sampling technique was used for the study. One hundred and twenty copies of questionnaires were administered to six support zone communities sampled. These were New Bussa, Wawa, Malale, Luma, Babanna, Karanbonde and Shagunu. Traditional native doctors, traders selling wild animal parts, hunters, farmers and consumers were targeted in the interview based on their knowledge on the study. Primary data were collected using structured questionnaire. A total of one hundred and seventeen copies of questionnaires were retrieved and analyzed. The result showed that farming was the major occupation of respondents (29.1%), with 41-60 years experience on the job. Most of the respondents are elderly men (55.3%) with few involvements of the women in trading with (20.5%) and youth (45.3%). There was an established flow in the trade of the animal parts within all the relevant stakeholders. The animal parts utilized include claws 25.4% which has the highest level of utilization for medicinal purposes, the least is the eyes of the animal with 5.9%. The medicinal values include the use of its hair by women for easy delivery during child birth, claw gives the farmers strength, the fats is used for treating rheumatism, the bones cures tuberculosis, the tail is used as charm during fighting, the skin is for protection against enemy and its meat consumed by man. Aardvark trading and utilization for meat and medicine was established as a viable trade in the study areas.

Keywords: Aardvark, Trading, Utilization, Conservation and respondents

Introduction

The Aardvark *Orycteropus afer* is a unique animal. It has a very strange appearance, a long slender nose reminds one of ant bears, the big ears are similar to those of Donkeys and the tail shows a strong resemblance to the one of Rats (Lehmann, 2006). The Aardvark *Orycteropus afer*, is a nocturnal animal, and feeds on ants and termites (myrmecophagous) (Lehmann, 2007). It is currently distributed

all over Africa south of the Sahara. It can be found in a wide range of environments, from savannah to evergreen forests; it avoids, however, deserts (Pickford, 2005).

The Aardvark *Orycteropus afer* is the sole surviving species of the order Tubulidentata, a group of primitive ungulates (Taylor *et al.*, 2004). No significant phylogenetic relationship exists between the Aardvark and either the Pangolins (Manidae). The



similarities in appearance and behavior of these species have been ascribed to convergent evolution (Van Aarde, 2004). The Aardvark bears little physical similarity to any single extant mammal. Its appearance is occasionally compared to that of a pig and this combined with its digging behavior has given rise to its colloquial name, the Aardvark, which means “earth-pig” in Afrikaans (O’Farrell, *et al.*, 2006). The head is elongated and tapers into a long, rounded, pig-like snout that ends in a blunt muzzle (Lehmann, 2004).

The Aardvark is digitigrades and the forefeet have four digits with sharp claws adapted for digging. The hind feet have five digits that are shorter and weaker compared to the forefeet. Total adult length can vary between 1.5 m and 2.0 m (Taylor, 2013) Adult weight can range from 40 kg to 80 kg (Van Aarde, 2004). Aardvarks do not exhibit sexual dimorphism (Ivanov, 2006). It lives in a diverse range of habitats including all varieties of savanna, open woodland, scrub, grassland and records even exist for the rainforests of the Congo Basin (Taylor, *et al.*, 2002; Van Aarde, 2004). It is, however, suggested that they favour areas with sandy soils and that they generally tend to avoid true forests and very arid areas. They may also be locally absent in mountainous and rocky areas and regions where the soil is either too shallow or too hard to excavate or where their prey is scarce (Van Aarde, 2004).

Aardvark is present in Kainji Lake National Park, Nigeria (Ayeni, 2007). The present populations in the park were conserved in-situ. Aardvarks are categorized as Least Concern by (James and Washington, 2013) however, their habitat have been destroyed in many agricultural areas. They are Vulnerable in all settled areas and Endangered or Extinct

in areas with a high concentration of people. They are often hunted by farmers and ranchers who find their hole digging inconvenient or dangerous. Cultivation and pesticide use has resulted in the elimination of their food source in some areas. All these activities of man have negatively impacted on the population of the animals in their various habitats. According to (Lindsey and Skinner, 2001) many tribes in Nigeria hunt Aardvark for its meat, trade and also use its body parts as charms. The food and medicinal values of this animal is one of the major threats to its population in the wild.

There is a paucity of literature on aspect of ecology, indigenous knowledge and utilization of Aardvarks in the study area. The few studies conducted on this animal major on home range and burrow utilization as well as their feeding ecology and phylogenetic history (Melton, 1976; Willis *et al.*, 1992; Van Aarde *et al.*, 1992; Springer *et al.*, 1997; Lindsey, 1999; Taylor and Skinner, 2003; Taylor and Skinner, 2004). According (Adeola, 1992) most farmers in rural areas in Nigeria depend solely on wild animals and their by-products for their daily animal protein supply and preparation of traditional medicine. These daily activities of human have a negative impact on the conservation of the animals which include Aardvark. Not much study has been conducted on the trade, utilization and implication on conservation of Aardvark in the study areas. This study specifically assessed the indigenous knowledge, trading, utilization of the animal and its implication on the conservation of existing population in the park and its environs.

Materials and Methods

Study Areas



The study was carried out in some communities surrounding Kainji Lake National Park, in Borgu Local Government Area, which is an administrative region in Niger State. The Local Government has its headquarters in New Bussa. It contains part of the Borgu Game Reserve, a section of the Kainji National Park (Kainji Lake National Park, 2010). The location of the area is between latitude 9°N and 11°S and longitude 2°W and 4°E. It has a land mass of about 16,200 km² (Ross Jones, 2010).

Method of data collection

A purposive sampling procedure was used to select six (6) communities based on reconnaissance survey and snow ball techniques. This sample represents ten percent (10%) of the total number of communities in the local Government that are engaged in the targeted occupations that

involved the utilization of Aardvark. These communities include New Bussa, Wawa, Luma, Malale, Babanna and Karabonde. In each community visited. Twenty (20) questionnaires were administered to the key stake holders who were able to supply relevant information for this study. They include traditional native doctors, traders selling wild animal parts, hunters, farmers and consumers. Field observation and a well-structured personal interview were used to collect qualitative data. The purpose is to obtain meaningful information on indigenous knowledge, trade, utilizations and conservation status views from each of the respondents within the study area on the Aardvark. The quantitative data collected were analyzed using descriptive statistics such as tables and qualitative data views were expressed in the results and discussion.

Table 1: Tribes of Respondents in the Study Area

Tribes	Local Name Of Aardvark
Bissan	Kita
Kambari	Ukwe
Hausa	Dabugi
Boko	Kida
Fulani	Dabugi
Nupe	Yanken
Zuru	Kwobe
Yoruba	Afimojo
Lopawa	Kumaye

Source: Field survey, 2021

Table 2: Communities Used for the Study

Communities	Questionnaire Distributed	Questionnaire Retrieved
New-Bussa	20	20
Babanna	20	20
Wawa	20	20
Luma	20	18

Malale	20	19
Karabonde	20	20
Total	120	117

Source: Field survey, 2021

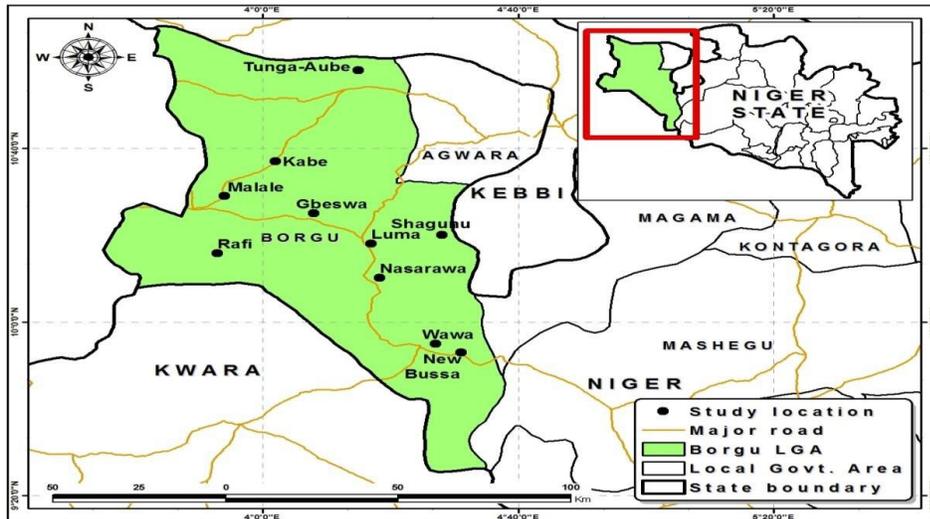


Figure 1 Map of Borgu Local Government Area of Niger state.

Source: Borgu Local Government Secretariat Office, New Bussa, 2018

Results

Table 3, indicates the occupation of respondents in the study area, farming with 29.1% has the highest percentage follow by hunting with 27.4%, traditional doctors 21.3%, traders (selling animal parts) with 21.3%, while fishing has the least percentage with 1.7%.

Table 4, shows working experience of respondents in which 41-60years with 43.6% has the highest percentage, follow by 21-40years years with 36.8%, 1-20years years has the least percentage with 8.5% . Table 5, indicates that all the respondents know the animal. Table 6, indicates the profitability of the respondent occupation with 73.5% has the highest percentage while 26.5% is the least percentage. Table 7, reveals the ways by which animal parts can be obtained with hunting having the highest percentage (with

49.6%) follow by purchase (with 39.3%) while gift has the least percentage (with 11.1%). Tables 8, it revealed that all the respondents still have access to the animal when needed for use. Table 9 shows the cost price of an adult male of Aardvark as noted by the respondents. Which ranges between ₦30,000 - ₦44,000 (has the highest with 60.0%) follow by ₦15,000 - ₦29,000 as noted by with 30.8%, and the least was ₦45,000 above with 10.2%. The average cost price for adult male Aardvark ranges between ₦30,000 - ₦44,000. Table 10 indicated the cost price of adult female of an Aardvark which ranges between ₦30,000 - ₦44,000 with 54.7% has the highest, follow by ₦15,000 - ₦29,000 with 36.8% follow by ₦45,000 above with 8.2% is the least. The average cost price for adult female Aardvark ranges between ₦15,000 - ₦29,000. Table 11



revealed the cost price of juvenile Aardvark that ranges from ₦11,000 - ₦20,000 with 64.1% has the highest, follow by ₦21,000 - ₦30,000 with 19%, while ₦1000 - ₦10,000 with 16.2% has the least. The average cost price for Juvenile Aardvark ranges between ₦11,000 - ₦20,000.

Table 12 indicates the cost price of young Aardvark which ranges from ₦1000 - ₦10,000 with 86.3% has the highest follow by ₦11,000 - ₦20,000 with 13.7%. The average cost price for young Aardvark ranges between ₦1,000 - ₦10,000. Table 13 reveals that all the respondents in the study areas consumed the animal as food. Table 14 also

shows that the animal has medicinal values with all the respondents (100%) alluding to that fact. Table 15 revealed the parts of the animal which serves as medicinal purposes with claws having 25.4% has the highest, follow by bone with 20.5%, fats with 13.7%, tail with 11.1%, skin with 9.4%, teeth with 8.5% while hair and eyes with 5.9% have the least respectively. The medicinal values revealed the animal hair is used by women for easy delivery during child birth. The claws give the farmers' strength, the fats is used for treating rheumatism and others medicinal uses.

Table 3: Occupation of Respondents in the Study Areas

Option	Frequency	Percentage (%)
Trading (selling of animal parts)	24	20.5
Farming	34	29.1
Hunting	32	27.4
Fishing	2	1.7
Traditional healers (Herbalists)	25	21.3
Total	117	100

Source: Field Survey, 2021

Table 4: Years of Respondents Job Experience

Years	Frequency	Percentage (%)	Modal Class
1-20	10	8.5	
21-40	43	36.8	
41-60	51	43.6	41-60
60above	13	11.1	
Average	29.3	25	
Total	117	100	

Source: Field Survey, 2021

Table 5: Identification of Aardvark by Respondent in the Study Areas

Option	Frequency	Percentage (%)
Yes	117	100
No	0	0
Total	117	100

Source: Field Survey, 2021



Table 6: Profitability of Respondents Job

Option	Frequency	Percentage (%)
High	86	73.5
Low	31	26.5
Total	117	100

Source: Field Survey, 2021

Table 7: Acquisitions of Aardvark (*Orycteropus afer*) Body Parts In The Study Areas

Option	Frequency	Percentage (%)	Mode
Purchase	46	39.3	
Hunting	58	49.6	Hunting
Gift	13	11.1	
Total	117	100	

Source: Field Survey, 2021

Table 8: Availability of the Animal in the Study Areas

Option	Frequency	Percentage (%)
Yes	117	100
No	0	0
Total	117	100

Source: Field Survey, 2021

Table 9: Cost Price for Adult Male Aardvark in the Study Areas

Cost (₦)	Frequency	Percentage (%)	Modal Class
1,000-14,000	0	-	
15,000-29,000	36	30.8	
30,000-44,000	69	60.0	30,000-44,000
45,000above	12	10.2	
Average	39	33.3	
Total	117	100	

Source: Field Survey, 2021

Table 10: Cost Price for Adult Female of Aardvark

Cost (₦)	Frequency	Percentage (%)	Modal Class
1,000-14,000	-	-	
15,000-29,000	43	36.8	
30,000-44,000	64	54.7	30,000-44,000
45above	10	8.2	
Average	39	33.3	
Total	117	100	

Source: Field Survey, 2021



Table 11: Cost Price for Juvenile Aardvark

Cost (₦)	Frequency	Percentage (%)	Modal Class
1,000-10,000	19	16.2	
11,000-20,000	75	64.1	11,000-20,000
21,000-30,000	23	19.7	
Average	39	33.3	
Total	117	100	

Source: Field Survey, 2021

Table 12: Cost Price for Young Aardvark

Cost (₦)	Frequency	Percentage (%)	Modal Class
1,000-10,000	101	86.3	1,000-10,000
11,000-20,000	16	13.7	
21,000-30,000	-	-	
Average	58.5	50	
Total	117	100	

Source: Field Survey, 2021

Table 13: Consumption of Aardvark as Food in the Study Areas

Option	Frequency	Percentage (%)
Yes	117	100
No	0	0
Total	117	100

Source: Field Survey, 2021

Table 14: Body Parts Of Aardvark Used For Medicinal Purposes.

Animal Part	Frequency	Percentage (%)	Mode
Bone	24	20.5	
Skin	11	9.4	
Claws	29	25.4	Claws
Tail	13	11.1	
Teeth	10	8.5	
Hair	7	5.9	
Fats	16	13.7	
Eyes	7	5.9	
Total	117	100	

Source: Field Survey, 2021

Table 15: Utilization of Aardvark Body Parts in the Study Areas.

Option	Medicinal Values	Percentage (%)
Hair	It enhances easy delivery for pregnant women	5.9
Claws	It uses to boost the strength of farmers.	25.4
Fat	It is used in treatment of Rheumatism patients	13.7



Bone	It is used in treating tuberculosis/Drilling out termite.	20.5
Tail	It is used as charm for fighting.	11.1
Eyes	It is use to enhanced extraordinary sightseeing.	5.9
Skin	It is use for protection against enemy attack.	9.4
Total		100

Source: Field survey, 2021

Discussion

The Aardvark is currently listed as an animal of least concern (Friedman and Daly, 2004; James and Washington, 2013) despite a lack of data regarding population sizes and trends. It implied that previous classifications of the Aardvark as “vulnerable” could be attributed to their nocturnal and elusive behaviour which may have resulted in them being viewed as uncommon (Taylor, 2002; Friedman and Daly, 2004).

The low densities at which they occur has probably enhanced the perception of these animals being uncommon (Taylor and Skinner, 2003). From the study it was discovered that the occupations of respondents in the study areas has a negative impact on the conservation of Aardvark with farming having 29.1% has the highest percentage follow by hunting with 26.5%, while fishing has the least percentage with 0.9%. Consequently, this is in line with the report of Ummunah, *et.al.*, (2020) reported 97.4% cropping farming was the highest and fishing was the least On-farm livelihood activities in the study areas. According to James and Washington, (2013), report the habitat of Aardvark had been destroyed in many agricultural areas. The job experience with 41-60years was 43.6% has the highest percentage. This indicated that the occupations of the people have a cultural link that can affect the population of the Aardvark in the study areas. The ways by which animal parts can be obtained with hunting having the

highest percentage with 49.6% while gift has the least percentage with 11.1%. According to Ntiamoa - Baidu, (1997) wild animal part were sold to traditional collectors by local hunters who in turn sell them to traditional healers and other.

The profitability of the occupation has 73.5% having the highest percentage. This would make it difficult for the people to accept any alternative source of livelihood that may not be profitable as the trading and others utilization that the animal is subjected to in the study areas can have a negative impact on the population of the species. All respondents can identify i.e. know the animal and still have access to the animal for food, trade and other forms of utilization. The cost price for all the categories of Aardvark age and sex structures compared to its size revealed how expensive the animal species is in the study areas. All the respondents reported that there was no taboo attached to consumption of the animal meat. This findings collaborates with the report of Puckree, *et al.*, (2002) which indicated that traditionally, animals such as hyraxes (rock and tree species), hares, crested porcupines and Aardvark, are hunted as a source of food (bush meat) and for traditional medicine and, more recently, as a financial supplement through their illegal trade. The animal products are also widely used in traditional medicines, Msigwa, *et al.*, (2015). The animal serves medicinal purposes with the use of the various parts.



This is in accordance with Puckree, *et al.*, (2002) who stated that wild animal and their by-products (*e.g.*, hooves, claws, hairs, tail, skins, bones, feathers, and tusks) form important ingredients in the preparation of curative, protective and preventive medicine. According to Puckree, *et al.*, (2002); Setlalekgomo, (2014) report, the uses of Aardvark fat are more for spiritual ailments than for medical purposes in Botswana, it is used mainly in the protection of humans. In this study, fat is the key ingredient in casting out evil, prevention of lightning strikes and weather control around the homesteads because it is incorporated into the mixture of traditional building materials used in the construction of homes or animal pens. For the medical ailments, it is mostly used in treating skin problems such as skin rash and ear or hearing-related problems such as sores and ear ache.

According to Lehmann, (2004); Huggins and Scheiter, (2012) the use of animal parts for the treatment of ailments affecting both humans and livestock has a long and rich history; the use of these body parts involved burning, drying and grinding/crushing before it could be administered as a cure/treatment, all except for the Aardvark fat that is used as it is. The fats of Aardvark was collected and applied on the affected part of the body for treating rheumatism. Also the bone is collected, dried and burnt before it was being grinded; it was then mixed with pap every morning and evening to cure tuberculosis. It is believed that soaking the claws of an Aardvark in water between 7-14days and the drink the water gives the farmer strength to cultivate land just as an Aardvark has the strength in digging hole very fast without getting tired. The tail is cut, and its bone removed without tearing the skin. Stick is

inserted into the tail and then sun dry after which the size of a boxer finger is cut from the dried part which is worn during fight. Implication on culture is that indigenous knowledge about the animal is being lost as the older generations are not passing relevant knowledge of the animal to the younger generation because they are not really interested in that aspect of their cultural heritage. This may favour the conservation of Aardvark in the aspect of using it for medicinal purposes which is a threat to the species.

Conclusion

Utilizations of Aardvark in traditional medicine are very diverse as far as illness treatment is concerned. It is a lucrative trade in the study areas, with almost every part useful and the claws mostly reported to give strength to farmers. No taboo is attached to its meat consumption. There is a need to investigate the present population size, age and sex structures of Aardvark in the wild. From the report of this study the population of the animal in the study areas is on the decrease due to the level of human activities and utilization of the animal in the study areas. An active conservation measure is needed urgently to avoid species extirpation in the study areas. Herbal or chemical remedies can readily be researched into as an alternative to Aardvark parts without threatening the existence of this vulnerable species in the park.

Recommendations

Based on the findings of the study, the following recommendations are made that awareness programmes need to be organized to enlighten the communities about the population status of Aardvark species in the



wild that is threatened and the need to conserve it for posterity.

The preservation of traditional knowledge, cultural environmental resources and documentation of this indigenous knowledge in favour of Aardvark conservation should be prioritized.

Also, provision of lucrative job opportunities for those involved in hunting, trading and utilization of the animal should be vigorously pursued in the study areas.

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