

CAPTURE METHODS OF WILDLIFE DISPLAYED AT A BUSHMEAT MARKET, RIVERS STATE, NIGERIA.

M. Aline E. Noutcha¹, Celine Emmanuel¹, Samuel N. Okiwelu^{1,2}

1. Department of Animal and Environmental Biology, University of Port Harcourt, Nigeria

2. Corresponding Author's Email: okiwelu2003@yahoo.com

Abstract: A recent IUCN report evaluates the state of West and Central Africa's terrestrial and freshwater fauna and highlights the inadequacy of responses to rapid wildlife decline in the region. The report attributes erosion of the region's biodiversity to several factors, including unsustainable resource exploitation, as well as hunting for bushmeat and illegal wildlife trade. The capture methods of wildlife and their impact in the catchment area of a rural bushmeat market were investigated. Data collections were undertaken over a 4-month period: March-April (dry) and May-June (rainy). In the dry season, wildlife captured by traps (snare) constituted 6866 (59.3%), while those shot were 4713 (40.7%). However, the difference was not significant. In the rainy season, wildlife captured by traps (snare) were 2306 (64.8%) and those shot were 1254 (35.2%). Four types of traps were identified: Iron trap (Ntigwe), Neck trap (Ntoboba), Waist trap (Nkulu), Foot trap. Shotgun was the main type of gun, although occasionally sophisticated weapons were identified. The impacts of these capture methods on offtake trends, function, structure and composition of ecosystem are discussed. The paper concludes with suggestions on conservation and sustainability.

Key words: Wildlife Capture Methods, Bushmeat, Conservation

1. Introduction

Many rural households in developing countries depend heavily wildlife resources, both plants and animals, for subsistence purposes and income generation. Indeed many rural

households derive a significant part of their cash income from sales of wildlife products. In most cases, this commercial trade in wildlife supplies markets within the country where the products originated [1]. Subsistence hunting is the customary and traditional use of wild animals for purposes of meeting basic nutritional, material, social and spiritual needs [2].

A recent IUCN report evaluates the state of West and Central Africa's terrestrial and freshwater fauna and highlights the inadequacy of responses to rapid wildlife decline in the region [3]. The report attributes the erosion of West and Central Africa's biodiversity to habitat loss and degradation due to rapid urbanization, agricultural expansion and unsustainable resource exploitation, as well as hunting for bush meat and the illegal wildlife trade [3]. The 11th CITES Conference of Parties (Cop) held in Nairobi, Kenya acknowledged the importance and seriousness of the illegal bushmeat trade. It constituted a Bushmeat Working Group (BWG), comprising of Central and West African range states as a result of concerns that many threatened species were being eaten into extinction and begin harmonizing legislation and coordination with regard to the bushmeat trade [4].

In West and Central Africa, an estimated 177 species have been documented as being hunted and used in the wild meat industry and 17% are listed as threatened on the IUCN Red List [5]. Snaring, using wire cable or tough plastic snares is probably the most widespread hunting method in Central African forests [6]. However, it is wasteful and almost completely non-selective of species in Central African Republic. Noss [7] reported that 27% animals successfully snared are lost to decomposition or scavenging and one-third broke the cable and escaped, having being injured. Hunting with guns facilitates more selective and efficient hunting of large-bodied (and arboreal) animals, such as bushpig, buffalo and primates [8, 9]. A component of a comprehensive study of the bushmeat market at Omagwa, Rivers State, was to examine the capture methods,

some of which have significant impact on sustainability. This was to complement other studies [10, 11, 12].

MATERIALS AND METHODS

Description of the Study Area

The catchment area that provides all carcasses sold at the Omagwa market is approximately 110km², dominated by secondary forest, fragmented by farms. It extends across four Local Government Areas (LGAs) (Emuoha, Etche, Ikwerre, Obia/Akpor) in Rivers State. The market is on the main road, connecting Port Harcourt and Owerri capitals of Rivers and Imo States respectively. There are two seasons: dry (November-April) and rainy (May-October).

Data collections were undertaken over a 4-month period: March-April (Late dry) and May-June (early rainy), daily, 06.00-19.00hrs. On receipt of any carcasses from either a hunter or middleman, information was sought on method of capture, complemented by personal observations. Discussions were held with hunters and visits were made to the capture villages to see the types of traps used across the catchment areas in a participatory observation approach rather than an investigative approach.

RESULTS

In the late dry season (March/April), wildlife captured by traps constituted 6866 (59.3%) compared to those that were shot, 4715 (40.7%). However, the difference was not significant ($F=1.08$, $df=25$, $p>0.05$) (Table 1). In the early rainy season (May/June), numbers of wildlife captured by traps constituted 2306 (64.8%) and those shot were 1254 (35.2%), but the difference was not significant (Table 1). When the offtake numbers from both seasons were pooled, numbers captured by traps were 9172 (60.6%) and those shot were 5962 (39.4%); the differences were not significant (Table 1).

Four types of traps or snares encountered are described; their local names are also listed.

- ✚ **Iron traps** (“Ntigwe”) - An iron trap is usually placed on the ground has two arms that serve as claspers. The claspers close when the prey passes over it, trapping the animal at the feet (Plate 1).
- ✚ **Neck traps** (“Ntoboba”) - constructed with wooden stakes and wire. Two 1m-long, wooden stakes are anchored on the ground, parallel to each other. At a height of approximately 1/3 of each stake, wires are tied across the stake to form a circular figure. Wildlife crossing is usually trapped at the neck (Plate 2).
- ✚ **Waist traps** (“Nlulu”) - A wire trap, constructed with 4-5 wooden stakes, anchored firmly on the ground. Two of the stakes are perpendicular to the ground, while the other 2-3 stakes are fastened together at one end and pinned to the ground at an angle. The wire forms a net that traps the rear end of the animal (Plate 3).
- ✚ **Foot traps** - Comprise a wire and two wooden stakes, anchored firmly on the ground. One of them is perpendicular and the other, at an angle. A big hole is dug beside the perpendicular stake. The hole is covered by a circular wire which extends to the slanted stake. An animal crossing the hole breaks a leg (Plate 4).

Shotguns were the main weapon for hunting, although an occasional sophisticated weapon was encountered. Night hunting with flashlight was common.

DISCUSSION

The higher numbers of captured wildlife during the dry season was probably due to reduced effort in the rainy season because the weather adversely affected trapping (snaring) or hunting with gun. Snaring or use of traps was more prevalent compared to the use of guns, although differences in percent in both dry and rainy seasons were not significant. Noss [6.7] found snaring more widespread in Central Africa. Noss [7] discussed the non-selective nature of this method; he estimated that 27% of animals caught were lost to decomposition or scavenging. The selective attribute of capturing

with guns was emphasized by Kumpel [8] and Van Vliet and Nasi [9]. Four types of traps were identified in the present study while in contiguous Cameroon, Infield [13] encountered 3 types of traps (Neck, water, Foot). Gadsby & Jenkins [14] found that the ratios of those using guns exclusively, combining trapping and use of guns, trapping exclusively, in Cameroon were 1:3:2. Nocturnal hunting might have targeted duikers, which are known to freeze in torchlight and can be approached closely [15]. It was therefore not surprising that a recent study by Noutcha *et al.* [12] showed a significant reduction in offtake numbers of Maxwell duiker, *Cephalophus maxwelli* in the catchment area. Recent studies in the catchment area, showed an increase in offtakes with bigger biomass: *Potamochoerus porcus* (River hog), *Tragelophus sekei* (Sitatunga), *Cercopithecus mona* (mona monkey). This trend might indicate an increase in the use of guns for hunting. According to the Optimal Foraging Theory, large-bodied animals will be hunted in favour of small-bodied species as the energy gained from the catch will outweigh that utilized during hunting [16]. Hunting therefore tends to have detrimental effects on larger species [17]. Petrozzi *et al.* [18] also observed an increase in the capture of animals with larger biomass, in an analysis of offtakes from five countries in West and Central Africa: Ghana, Nigeria, Cameroon, Equatorial Guinea, Democratic Republic of Congo.

Offtake rates are known to trigger several effects, which are not clearly understood. They can alter the overall function, structure and composition of the ecosystem [19]. They may directly affect the targeted species but may have indirect effects, often referred to as cascade effects, as occurs when declining species under pressure change their ecological interactions with other species [18, 20, 21] (Wright, 2003; Letomeau *et al.*, 2004; Petrozzi *et al.*, 2016).

CONCLUSION

Efforts must be intensified by the States' Ministries of Environment and Agriculture/ Natural Resources to educate hunters on the negative aspects of the use of snares/traps and the selectivity of guns. There should also be a simultaneous campaign on enlightenment of those in the trade on the concepts of conservation and sustainability.

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Table 1: Capture Methods of Wildlife in the Catchment Area of a Rural Bushmeat Market, Rivers State, Nigeria

Seasons	Capture Methods	No of Carcasses killed	% of Total Carcasses
Late Dry	Snaring (Trapping)	6866	59.3
	Hunting with Gun	4713	40.7
Early Rainy	Snaring (Trapping)	2306	64.8
	Hunting with Gun	1254	35.2
Late Dry and	Snaring (Trapping)	9172	60.6
Early Rainy	Hunting with Gun	5967	39.4



Plate 1. Iron Trap



Plate 2 – Neck Trap



Plate 3: Waist Trap



Plate 4: Foot Trap