Perception of Residence on Tree Species Conservation in *Kwabaktina* Forest Reserve in Adamawa State, Nigeria

ABSTRACT

Tree species and conservation status in *Kwabaktina*forest reserve in Adamawa state, Nigeria was carried out with the aim to assess economic tree species availability and the conservation status of the species in thestudy area. Stratified and simple random sampling designs were used to distribute 60 copies of structured questionnaire to the people living around the forest reserve. The data were analyzed using descriptive statistics. The results showed that 64% of respondents were not participating in conservation of tree species due to poor infrastructural facilities and poverty in the area. The majority of the people were involved in various forms of deforestation (farming 46%, fuel wood gathering 22% and settlement 9%). These practices hadgreatly affected tree species diversity and abundance in the study area; thereby increasing environmental problems such as flooding and soil erosion (16%). Most of the economic tree species (19) were decreasing in availability with *Rauvolfia*and *Sterculia species* endangered. The major factor responsible for tree species decline was anthropogenic activities (67%). Majority of the people were willing to support tree conservation. Thus, there is the need for further research to update the current list of conserved species on national red list species data bases. Also, Government stakeholders should provide more awareness on environmental education and alternative domestic energy in order to minimize indiscriminate felling of trees and over exploitation to prevent extinction of these economic tree species in the study area.

Key Words: Conservation; Degradation; Threaten; Endanger; Species.

INTRODUCTION

Increasing human population growth rates and poverty (FAO, 2009) are the major causes of woody plant species loss in developing countries.These drivers are forcing rural community dwellers to harvest woody plant species using poor methods and in an unsustainable ways (Tabuti, 2012).High intensity of logging and illegal exploitation of woody plant species and other resources have continued to pose serious threat to the country's biodiversity (Okafor*et al*., 2010).

Trees species play important role in the survival of man on earth thereby, providing array of wood and non-wood products which are significant in sustaining the overall socio-economic wellbeing of human. The protection functions and potential worth for these species have been overlooked and ignored by the different communities in Nigeria. Some of these species are going locally extinct at an alarming rate due to environmental degradation caused by human and

natural activities as well as poor conservation status leading to habitat loss, degradation, spread of invasive plant species, pollution and climate change (Stain *et al.,* 2000). The aim of this study is to assess the economic tree species and conservation status of *Kwabaktina* Forest Reserve in *Adamawa* State, Nigeria. The study would help to provide current information on threaten tree species and conservation status of tree species in the study area.

STUDY AREA

The study was carried out in*Kwabaktina*Forest Reserve in *Adamawa* State. *Adamawa*State is located in the North-eastern part of the between latitudes 10° 21' and 13°30' N of the equator and longitude 13° 10' and 13° 40' E of the Greenwich Meridian. The study area had population of about 681,353 (NPC, 2006).The area has distinct seasons, namely- dry and wet seasons.The annual rainfall rangesbetween 800mm and 1,000mm. Maximum temperature can reach up to 40 °C and minimum temperature can be as low as 18 °C. Due to low rainfall and frequent dry spells in the study area, farmers suffer reduced crop yield, shortage of water and biomass for animals (Adebayo *et al*., 2012).The Vegetation of the area is characterized of Sudan Savannah towards extreme North and Northern Guinea Savannah for the remaining part of the area.

DATA COLLECTION AND ANALYSIS

Simple random sampling design was used to distribute sixty copies of structured questionnaire to respondents who live around the forest reserve in the study area. A total of 60 respondents were sampled.Data collected were analyzed using descriptive statistic (Tables, percentages and frequency).

RESULTS

Table 1 shows the rate at which trees species were being conserved in the study area by the respondents. Based on the result, 26% of respondents were conserving trees species for food;7% for the purpose of environmental protection (prevention of flood, erosion and provision of micro climate) and medicinal values while 4% of the people are conserving these treespecies for cultural and religious values. The majority (64%) of them were not participating in any form of conservation strategies due to lack of interest and high poverty level. Also, 47% engaged in logging and felling down of trees for agricultural production, while 24% and 9% of the people

were involved in deforestation practices (for fuel wood and coal production) and settlement, respectively. About 21%of the people did not support deforestation in the study area.

Table 1: Conservation Trends of Tree Species in *Kwabaktina* Forest Reserve, *Adamawa* State Nigeria

Variable	Frequency	Percent (%)
Reason(s) for Conservation		
Food/Protection	15	26
Medicinal values	4	7
Cultural/Religious values	2	3
None of the above	37	64
Deforestation Activities58	**100**	
Farming	27	47
Fuel Wood/Sale	14	24
Building	5	9
None of the above	12	21
Assessment of Deforestation58	**100**	
Very high	12	21
High	35	60
Low	9	16
None of the above	2	3
Total	**58**	**100**

List of trees species assessed in the study area are listed in Table 2. The people around the forest reserve listed the endangered tree species which they thought were declining in availability and those they thought were increasing. Every tree species with increasing frequencies were compared with those with decreasing in availability and the higher of the two frequencies is taken as the status for the species. Based on the results (Table 2), nineteen (19) species were decreasing in abundance while eight (8) are increasing.

The conservation status of the 27 species encountered in the study area(Table 3) was confirmed on the IUCN red list of threatened species. Out of the 27 species, two species (*Rauvolfia sp* and *Sterculia sp*) were reported to be threatened with extinction, *Khayasenegalensis* was reported vulnerable while 5 species (*Acacia sp, Albizia sp, Allophylus africana, Strychnos spinosa,*

Vitellaria paradoxa and *Vitex doniana)*were endangered**.** Some species were reported least concern, while *Anogeissus leiocarpa, Strombosia postulata, Rytigniaum bellatum, Uapacatogoensis* and *Pterocarpus erinaceus* were not found on the IUCN 2016 catalogue.

Table 2: Important Woody Plant Species and Their Conservation Statusin *Kwabaktina* Forest Reserve, *Adamawa* State Nigeria

Species	Frequencies		Species Status
	Decreasing in Availability	Increasing in Availability	
Acacia sp	26	18	Decreasing
Afzeliaafricana	32	1	Decreasing
Albiziagummifera	26	4	Decreasing
Allophylus africanus	4	0	Decreasing
Anogeissusleiocarpa	11	39	Increasing
Bambaxcosveolens	5	0	Decreasing
Borassusaethiopum	23	0	Decreasing
Deinbolliapinnata	2	8	Increasing
Garciniasmithmanii	0	10	Increasing
Hymenocardiaacida	9	39	Increasing
Khayasenegalensis	19	12	Decreasing
Pleiocarpapycnantha	2	10	Increasing
Prosopisafricana	7	18	Decreasing
Psychotria sp	7	1	Decreasing
Pterocarpuserinaceus	53	0	Decreasing
Rauvolfiavomitoria	8	0	Decreasing
Rytignia umbellatum	0	10	Decreasing
Scheffleraabyssinica	9	1	Increasing
Sterculiasetigera	16	1	Decreasing
Strombosiapostulata	0	17	Decreasing
Strychnosspinosa	11	3	Increasing
Terminalia species	24	20	Decreasing
Uapacatogoensis	0	56	Increasing
Vitellariaparadoxa	19	8	Decreasing
Vitexdoniana	14	5	Decreasing
Ziziphus sp	7	5	Decreasing
Total	**336**	**286**	

This finding revealed some of the threats to trees species conservation in the study area (Table 3). Human activities (67%) were the major threat to trees species conservation and diversity in the study area, animal grazing (14%), natural disasters such as drought and flood (12%). Trees species that were in abundance in the study area could be as a result of support (Job opportunity) from Government and Non-Governmental Organizations. The increase was also associated with natural regeneration and law enforcement.

Table 3: Factors Affecting Tree Species Conservation in *Kwabaktina* Forest Reserve, *Adamawa* State Nigeria

Factors	Frequency	Percent (%)
Threats to Tree species Distribution		
Human activities	39	67
Domestic Animals	8	14
Natural disasters	7	12
Poor soil quality	4	7
Factors Promoting Distribution of Trees Species		**100**
Promotion by Govt./NGOs	10	17
Natural factors	28	48
Human inducement	15	26
Law enforcement	5	9
Total	**58**	**100**

The perception of trees species conservation showed 21%, 9% and 17% of the people considered trees species conservation as very important, important and fairly important respectively; while 33% regarded it as not important (Table 4). The results of the willingness of the communities to participate in trees species conservation revealed that 17% (low and very low) of the people did not support trees species conservation while 52% (low and very low) of the respondents did support trees species conservation. The general acceptability of wood protection showed 63% (high and very high) of the people welcome the idea of tree species protection, while 17% of the people did not like the idea of conservation (Table 4).

Table 4: Perception on Tree Species Conservation in *Kwabaktina* Forest Reserve, *Adamawa* State Nigeria

Levels	Frequency	Percent (%)
Perception on Forest Conservation		
Very Important	12	21
Important1	72	9
Fairly Important	10	17
Not Important	19	33

Forest Conservation Participation	**58**	**100**
Very high	17	9
High	25	43
Low	10	17
Very low	6	10
Level of Tree Species Conservation	**58**	**100**
Very high	16	28
High	32	55
Low	6	10
Very low	4	7
Total	**58**	**100**

DISCUSSION

This finding showed there was a high level of deforestation that could lead to desert encroachment, soil erosion and land degradation in the study area. This could be responsible for the decrease in the availability of trees species in the study area . This observation agrees with FAO (2009) and McCarty (2001) that human population growth is the major cause of plant species loss. Population growth poses a serious threat on plant species due to anthropogenic activities. This implies that some economic tree species will be endangered and there could be soil degradation in the area. This result agrees with Al-min (2013) and Akinyemi*et al.* (2008), which reported that anthropogenic activities are the major causes of soil degradation which in turn reduce the population of plant species. Increasing human population growth rates and poverty (FAO, 2009) are the major causes of woody plant species loss in developing countries.These drivers are forcing rural community dwellers to harvest woody plant species using poor methods and in an unsustainable ways (Tabuti, 2012). High intensity of logging and illegal exploitation of woody plant species and other resources have continued to pose serious threat to the country's biodiversity (Okafor*et al*., 2010).

Most of the forest community people are not conserving trees species for various reasons, only very few practice forest conservation in the study area. The reasons for trees conservation include: food, medicines, shade, NTFPs, cultural and religious importance and ecological services. This agrees with the report of NEMA (2010) and Vallenjo *et al.* (2011), which reported

tree species are considered essential to economic development and the maintenance of all forms of life.

Trees species play important role in the survival of man on earth thereby, providing array of wood and non-wood products which are significant in sustaining the overall socio-economic wellbeing of human. The protection functions and potential worth for these species have been overlooked and ignored by the communities in the study area. The conservation of tree species has become less important in our society due to high interest attached to farming, fuelwood extraction, settlement and industrial development as a result of the increasing human population (Table 4). This agrees with Al-min (2013) that the decline in tree cover will affect all aspects of daily life of the people. Neelo*et al*. (2015) reported that excessive anthropogenic disturbances, such as logging or cutting trees, usually result in an immediate decline in species diversity.

Tree species conservation is common in the study area but there are few people having a very different perception toward forest conservation in the study area. Most of the people in the communities are ready to support tree conservation strategies and minimize the rate of tree felling in their areas if concerned stakeholders (Government and NGOs) will support the communities through the provision of basic social amenities needs.

CONCLUSION

There was high level of tree species conservation in the study area with 20% of the people having poor perception toward forest conservation in the study area. The forest community people are conserving tree species for medicinal, food, cultural and religious purposes. Anthropogenic factor was the major threat to trees species conservation in the study area.Twenty seven tree species were listed as endangered species with 19 species decreasing and 8 species increasing in availability and abundance in the study area. Based on this finding, there is urgent need to orient the community dwellers on the negative impacts of anthropogenic activities on the forest reserve, especially the endangered species. Also, there is need for further research to update the current list of conserved species on national red list species data bases.

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