FUDMA Journal of Sciences (FJS)
ISSN Online: 2616-1370
ISSN Print: 2645-2944
Vol. 2 No.4, December, 2018, pp 34 - 38

POTENTIALS OF SOCIO-ECONOMIC TREE SPECIES IN DUTSE LOCAL GOVERNMENT AREA OF JIGAWA STATE, NIGERIA

***Lawal, A. A., Salami K.D., Amina H. G., Oladipupo A. Y., and Dagauda A. M.,**

Department of Forestry and Wildlife Management, Federal University Dutse, Jigawa, Nigeria.

*Corresponding author: lawal.abdulhakeem@fud.edu.ng

ABSTRACT

Population growth affects forest ecosystem due to the diverse benefits it provides. The rate of disappearance of indigenous trees species in Dutse has remained a threat to conservation and ecosystem managers. This study examines the local utilization of economic trees and factors affecting their availability. Multistage sampling technique was used. 120 sets of questionnaires were administered while the data were subjected to descriptive statistical analysis. Eighteen tree species were discovered to be most economical. (25%) *Prosopis africana* had the highest percentage frequency, followed by (16.7%) *Parkia biglobosa* and (12.5%) *Sclerocarya birrea* respectively. 38.3% of the respondents utilized the trees for food, 25% used it as herbal therapy, 17.5% used it as fuel wood while 7.5% used it for furniture. A good number of tree species are used for food and medicinal remedies more than any other use from. However, some other native tree species of socio-economic importance have disappeared. This implies that, if the rate of loss of these economic trees in the study area is not checked, the economic welfare of the most populated rural communities may be affected. In conclusion, attention should be given to conservation through teachings in relevant aspects such as forestry, rural development, agro-forestry and environmental science which will provide a foundation for sustainability in the study area. Enrichment planting should be carried out to support the socio-economic welfare of the people and help re-introduce some disappearing native species.

Keywords: *socio-economic, indigenous trees, fodder, fuel wood, frequency*

INTRODUCTION

The importance of forest to mankind cannot be overemphasized. Agbogidi *et al.,* (2008) noted that forests and forest products play vital roles in human life from the cradle to the grave. Udo (2001) noted that forest benefits include tangible benefits-wood products and non-wood products and environmental benefits. Research in developing countries has revealed that trees are planted around houses for fruits, nuts, leaves, fuel wood, fodder, vegetables, shade and windbreaks (Fuwape *et al.,* 2011). Urban vegetation, particularly trees, provides numerous benefits that can improve environmental quality and human health in and around urban areas. These benefits include improvements in air and water quality, building energy conservation, cooler air temperatures, reductions in ultraviolet radiation, and many other environmental and social benefits (Nowak and Dwyer, 2007; Agbelade *et al.,* 2016).

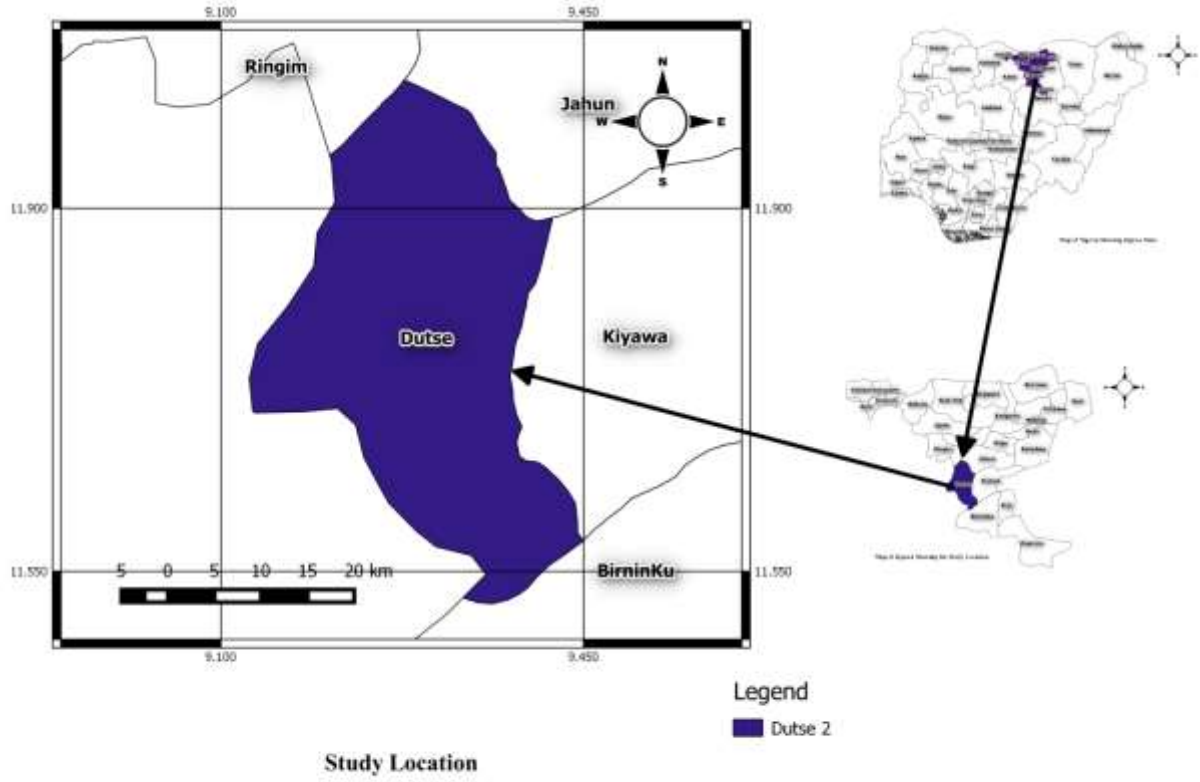
Food security, health and the socio-economic welfare of both the rural and urban communities has been sustained through non-timber forest products (NTFPs) such as fruits, seeds, roots, stems, leaves and flowers (FAO, 1989) of indigenous species. NTFPs contribute significantly to rural poverty alleviation by providing employment and enhancing economic empowerment of rural dwellers through the collection, processing and marketing of their products such as fruits, seeds, leaves, root etc. (Franzel *et al.,* 2008). Despite the roles and benefits derived from the forest, the unsustainable utilization of its resources in some areas has remained a nightmare for biological conservation. FAO (2004) reported that, Nigeria has one of the world's highest rates of deforestation of primary forests, where more than 50% of such forests have been lost in the past decades through unsustainable logging, agriculture, as well as fuel wood collection.

In Dutse local government area a total of 32 taxa of trees belonging to 18 families were reported available due to the combined effects of the harsh climate and anthropogenic factors such as farming, grazing and consistent exploitation of the biodiversity for various economic uses that threatens plants distribution (Oyebanji *et al.*, 2017). The rate of disappearance of indigenous tree of high economic values and its effects on human has not been adequately assessed. This study therefore assesses the potentials of economic trees in Dutse Local

Government Area, Jigawa State with the aim of making useful recommendations for policy makers and conservationist. Most of the economic tree species are fast disappearing despite enormous uses and benefits. Agroforestry p ractices should be encouraged amidst the farming population.

MATERIALS AND METHODS

The study was carried out in Dutse, Jigawa State capital. Dutse is predominantly occupied by Hausa and Fulani with an estimated population of 153,000 in 2007 (World Gazetteer, 2007). Predominantly, the inhabitants of Dutse are farmers. Most part of the state is covered by Sudan savannah and the southern part of the state has guinea savannah.



Study Location

The study area was stratified into eight (8) stratums (Michael, 1990). A total set of 120 questionnaires were administered in selected eight (8) settlements. Ten (10) sets of questionnaires were distributed in each of the eight stratums/settlements which were given to the dwellers in each settlement. The remaining forty (40) sets were administered in the Ministry of Environment, Department of Forestry in Dutse Local Government Area. The respondents from the Ministry were contacted in order to obtain professionally induced information. The data obtained from the research was analyzed using Statistical Package for Social Sciences (SPSS). Descriptive statistics was used to get frequency distribution tables for better understanding and percentages to determine the proportions of the variables. Data collected were subjected to descriptive statistics in form of frequency and percentage distribution, tables and pie chart.

RESULTS AND DISCUSSION

The results in Table 1 revealed that gender distribution of the respondents indicates that 95% of the respondents were male while 5% were female. Distribution of respondents' marital status showed that 22.5% were single, while 77.5% were married. The variance in the marital status of the respondents and the larger percentage of male involvement in the processing and marketing of timber and other Non-Timber Forest Products (NTFPs) likewise could have been dictated by the cultural norms peculiar to the northern region of Nigeria. Those involved in the collection and marketing of the forest resources are largely people within 21-40 years of age. The age of respondents in the study area ranged from 21 to above 51 years. A higher percentage (42.5%) of the respondents was in the age group of 31-40 years followed by age group 21-30, 41-50 years and 51 years and above with respective percentages of 26.7, 20.0 and 10.8, this is in consonance with the finding of Yekinni, (2011), where he observed that the mean age for agroforestry farmers in Nigeria is within the range of 43.2 years. This age bracket

comprises of both youths and few adults. The educational qualification of the respondents indicates that 35.8% had tertiary and non-formal education while 20.8% and 7.5% had primary and secondary education respectively. An appreciable percentage of them had primary education while a few had secondary education. All the respondents had one form of education or the other, which is in line with Oladeji's findings (2011) who said; farmers have one form of education or the other. The level of literacy indicates that people irrespective of their educational background can be involved in the identification, marketing and conservation of forest resource base. Occupation of the respondents showed equal percentages of 33.3% for crop farmers, pastoral farmers and civil servants.

Table 1: Socio-economic characteristics of respondents

Variables	Characteristics	Frequency	Percent (%)	Mean
Gender	Male	114	95	
	Female	6	5	
	Total	**120**	**100**	**60**
Marital Status	Single	27	22.5	
	Married	93	77.5	
	Divorced	0	0	
	Widow	0	0	
	Widower	0	0	
	Total	**120**	**100**	**20**
Age	21-30	32	26.7	
	31-40	51	42.5	
	41-50	24	20.0	
	51 and above	13	10.8	
	Total	**120**	**100**	**30**
Educational Qualification	Primary	25	20.8	
	Non-formal Education	43	35.8	
	Secondary	9	7.5	
	Adult Education	0	0	
	Tertiary	43	35.8	
	Total	**120**	**100**	**24**
Occupation	Crop Farmer	40	33.3	
	Pastoral Farmer	40	33.3	
	Civil Servant	40	33.3	
	Total	**120**	**100**	**40**

Source: Field Survey, 2018.

Socio-economic Trees

The respondents were able to identify the trees species in Table 2 to be of economic importance in their respective communities. *Prosopis africana* recorded the highest frequency of 25%, next to it was *Parkia biglobosa* with 16.7%, *Sclerocarya birrea* 12.5%, *Vitex doniana* and *Vitellaria paradoxa* had 8% each. *Cordia africana, Ficus polita, Phoenix dactylifera, Hyphaene thebaica, Adansonia digitata, Ziziphus spina-christi, Detarium microcarpum* and *Anacardium occidentale* had the lowest frequencies of 1.7%. The high frequencies of *Prosopis africana, Parkia biglobosa* and *Sclerocarya birrea* may be evidence of their being native to mainland Africa (FAO, 2011). This is in agreement with Joshi (2009), Salami and Lawal (2017), whom observed that more attention have been given to economically important species of tree plants especially *Prosopis Africana* and *Parkia biglobosa* in recent years. Eight tree species: *Cordia africana, Ficus polita, Phoenix dactylifera, Hyphaene thebaica, Adansonia digitata, Ziziphus spina-christi, Detarium microcarpum* and *Anacardium occidentale* have low frequencies in the study area. This could be attributed to their intensive use; since they are locally important for food and fodder. This is worsened by the slow regeneration ability of these tree species. In addition to their frequent use for food and fodder, frequent tillage during agricultural activities their seedling and saplings may also be killed in the process.

Table 2: Economic Tree Species in Dutse.

Common Name	Botanical Name	Frequency	Percent (%)	Cumulative Percent
Sudan Teak (Alillibaa)	*Cordia Africana*	2	1.7	1.7
Desert Date (Aduuwaa)	*Balanites aegyptiaca*	5	4.2	5.8
Marula (Danyaa)	*Sclerocarya birrea*	15	12.5	18.3
Heart-leaved Fig (Durumii)	*Ficus polita*	2	1.7	20.0
Black Plum (Dinyaa)	*Vitex doniana*	8	6.7	26.7
Locust Bean ((Dorowa)	*Parkia biglobosa*	20	16.7	43.3
Date Palm (Dabiinoo)	*Phoenix dactylifera*	2	1.7	45.0
Dum Palm (Gooruba)	*Hyphaene thebaica*	2	1.7	46.7
Shea butter Tree (Kadanya)	*Vitellaria paradoxa*	8	6.7	53.3
Ebony Tree (Kanya)	*Diospyros mespiliformis*	5	4.2	57.5
Baobab (Kuka)	*Adansonia digitata*	2	1.7	59.2
Christ's Thorn Jujube (Kurna)	*Ziziphus spina-christi*	2	1.7	60.8
African Mesquite (Kirya)	*Prosopis africana*	30	25.0	85.8
Mango (Mangwaro)	*Mangifera indica*	5	4.2	90.0
Tamarind (Tsammiiyaa)	*Tamarindus indica*	4	3.3	93.3
Sweet Detar (Taurar)	*Detarium microcarpum*	2	1.7	95.0
Moringa (Zoogale)	*Moringa oleifera*	4	3.3	98.3
Cashew (Dankanju)	*Anacardium occidentale*	2	1.7	100.0
Total		120	100.0	

Source: Field Survey, 2018.

It is evident that most people return to the forest to source for their food and medicinal remedies. Table 3 below shows that, food is the major utilization form of the tree species in the study area (38.3%). The use of trees' parts for ethno-medicinal therapy accounted for 25% while fuel, fodder and timber had 17.5%, 11.7% and 7.5% respectively. This is in line with Orwa *et al.,* (2009) who reported that *Prosopis africana* seeds are used as a food condiment. Also, Bonkoungou (1987) reported that species like *Parkia biglobosa* is used in traditional medicine to treat both external and internal sicknesses. The low utilization of the forest resources for fuel, fodder and timber or construction as observed in the study could be empirical. Salami and Lawal (2017) observed that most domestic fuel energy in savanna is sourced from the far bushes due to the intensity of degradation of the forest ecosystem.

Table 3: The Utilization of Economic Trees in Dutse

Uses	Frequency	Percentage (%)
Fuel	21	17.5
Medicine	30	25.0
Food	46	38.3
Fodder	14	11.7
Timber/Construction	9	7.5
Total	**120**	**100**

Source: Field Survey 2018.

CONCLUSION

It is revealed from the study that, there is a good number of tree species that are economically beneficial to the people dwelling in Dutse. A substantial percentage of them are used as food, medicine, fodder for their animals, fuel wood, wood for constructions and source of income. Hence, enrichment planting should be carried out to support the socio-economic welfare of the people and help re-introduce some disappearing native species like *Cordia africana, Ficus polita, Phoenix dactylifera, Hyphaene thebaica, Adansonia digitata, Ziziphus spina-christi, Detarium microcarpum* and *Anacardium occidentale*. Agroforestry practices should be re-invigorated for forest

regeneration, to reduce the pressures and disappearance of the indigenous trees species as a result of demands for agricultural land uses.

REFERENCES

Agbelade, A. D., Onyekwelu J. C. and Apobgona, O. (2016). Assessment of Urban Tree Species Population and Diversity in Ibadan, Nigeria. *Environmental and Ecology Research, 4(4):185-192.*

Agbogidi, O. M. (2002). Deforestation and the Nigeria's rural environment. In: Ibitoye, O. A. Eds., Rural environment and sustainable development. Petoa Educational Publishers, Ado Ekiti pp: 230-234.

Bonkoungou, E. G., (1987). IRBET, Ouagadougou: Monograhie du Nere, *Parkia biglobosa* (Jacq.) Benth: espece a usages multiples. Burkina Faso, pp: 69.

FAO FAO (2001). "The Role of Woodfuel in Africa by D. Gustafon. In: Nairobi, Proceeding of a High Level Regional meeting on Energy and Sustainable Development, Eds., Wamukonye, N., Food and Agriculture Organization of the United Nations, pp: 99-101.

FAO, (1989). Food and Agricultural Organization of United Nations: Household food security and forestry, An analysis of socio-economic issues. World and regional reviews, Rome. pp. 168.

FAO, **(**2011). FAO Statistical Development Series, World Census of Agriculture: analysis and international comparison *of the results (1996-2005).* v. 13, p. 188.

Franzel, S., Akinnifesi, F.K. and Ham, C., (2008). Setting priorities among indigenous fruit tree in Africa: Example from Southern, Eastern and Western Africa. In: Wallingford: Indigenous fruit trees in the tropics: Domestication, Use, and commercialization, Eds., Akinnifesi, F.K., Leakey, R.R.B., Ajayi, O.C., Sileshi, G., Tchoundjeu, Z., Matakala, P., and Kwesiga, F.R: CAB International, pp: 1 – 27.

Fuwape J. A., and Onyekwelu J. C. (2011). Urban Forest Development in West Africa: Benefits and Challenges. *Journal of Biodiversity and Ecological Sciences, 1(1) pp. 7*

Jimoh, S.O and Lawal, A. A. (2016). Woody plant species composition and diversity in disturbed and undisturbed areas of Omo Forest Reserve, Ogun State, Nigeria. *African Journal of Agriculture, Technology and Environment, 5(2): 60 – 73.*

Joshi, A.R., Joshi, K. (2009). Plant diversity and ethano-botanical notes on trees species of syabal village Longtan National, *Parkiabiglobosa*. *Journal of Ethno Botany, 13: 651 - 664.*

Micheal P. (1990). Designing Qualitative Studies: Qualitative evaluation and research methods. Beverly Hills. CA: Sage.

Nowak, D. J. and Dwyer, J. F. (2007). Understanding the Benefits and Costs of Urban Forest Ecosystems. In Netherlands: Urban and Community Forestry in the Northeast (2nded), Eds., J. E. Kuser. Springer, pp. 25-46.

Oladeji J. O. (2011). Farmers' Perception of Agricultural Advertisements in Nigeria Newspapers in Ibadan Municipality, Oyo State, Nigeria. *Journal of the Media and Communication Studies; 3(3):97-101*

Oyebanji, S. B., Adeyemi, O. O., Agboola and Bolarinwa K. (2017). Taxonomy, Ethnobotany and Vegetation Analysis of Biodiversity in Dutse Local Government, Jigawa State, Nigeria. *FUW Trends in Science & Technology Journal, www.ftstjournal.come-ISSN: 2(2): 679 – 683.*

Salami K.D. and Lawal A.A. (2018). Description of economical trees and shrubs species in Northern part of Nigeria and their potentials. In theProceedings of 6th Biennial national coference of the forests and forest products society, pp: 136-144.

Udo, E. S. (2001). The position of forestry in Awa Ibom State. In the Proceedings of the 1st workshop of the Forestry Association of Nigeria Akwa Ibom State Branch in collaboration with the Department of Forestry and Wildlife, University of Uyo, State Ministry of Environment and the UNDP, pp: 31-43.

World Gazetter, (2017). *World*. Retrieved April 13, 2007, from http//www.world-gazetter.com

Yekinni O. T. (2011). Determinants of Utilization of Information Communication Technologies for Agricultural Extension Delivery in Nigeria. Ph.D Thesis in the Department of Agricultural Extension and Rural Development, University of Ibadan.