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A Survey of Indigenous Tree Species Used For Domestic Purposes in New- Bussa, Nigeria

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ABSTRACT
The study focused on the indigenous tree species commonly used in New-Bussa, Niger state, Nigeria. Structured questionnaire was used to obtain data from seventy six (76) randomly sampled respondents. Direct field observation and interview guide were also used for easy identification of the trees. Frequencies and percentages were used to describe the data. Findings revealed that the indigenous tree species parts identified are the leaves, flower, fruits, seeds, barks and roots widely used for food, medicine, and fodder. Other benefits of the indigenous tree species to the people include fuel wood, pole, timber, soil fertility maintenance, shade and environmental/aesthetic values. *Parkia biglobosa* and *Vitellaria paradoxa* were the most important commonly used indigenous tree species in the study area and the major method of regeneration is by natural means. It was found that indigenous trees in the area play vital role in the socio-economic development of the people and this has made it possible for the people to undergo various trading activities of some useful parts of the trees. The study recommends control and sustainable use of the resources through researches to explore more potentials while indiscriminate felling should be discouraged.
Keywords: benefit, indigenous, trees species, shrubs, environment

INTRODUCTION

Trees are integral part of land resources that need careful management and sustainability for utilization for future generation. This therefore makes vegetation protection a very important issue, consequently, vegetation protection and management become a global concern. Vegetation as a resource, provides some basic needs of life such as food, fuel, wood, herbs, conservation of land, soil fertility and so on. Therefore it plays a vital role in human development. It is believed that vegetation resources form the basis on which life of all organisms depends, therefore, all living organisms solely depend on vegetation resources directly or indirectly in which man cannot survive without them. Plants as major supplies of food, fuel, timber, shade etc. need proper protection and management for sustainable environment in addition to human development (Oboho, 2014).

There is a large number of trees species in the Guinea savanna vegetation zone of Nigeria that are of great importance to the inhabitants of the area. The huge importance of savanna trees and grasses prompt many researchers to study them intensively. Trees are significant to African farmers, because it provides fodder to livestock which are generally used during the dry season as browse when little or no other fodder is available. Soil around the trees is enriched through leaf fall and by droppings of livestock that are sheltered from the hot sun by the trees. The importance of trees in daily lives cannot be over emphasized. It is vital to mans existence because of the many ecological and economic functions it performs. It offers watershed protection, a regular supply of fresh water, and prevents flooding and siltation of river beds downstream. Also it lends

stability to hydrological system. It prevents soil erosion, helps in maintaining the water, oxygen, carbon and nitrogen cycle. In addition, trees help in the purification and improvement of air quality (World Wildlife Foundation, 2016). Meanwhile, trees remain an essential component of the indigenous agricultural systems in Nigeria. Most trees are preserved or managed to meet the immediate needs of the population such as food, medicine, income, and ecological sustainability (Ajake, 2012).

Access to vegetation resources has been defined by Mohammed (1997) as the habit, power or right of an individual to get near or been exposed to vegetation resources. Access to indigenous trees and shrubs in the area is classified into three main groups (i.e. private, common and open access). This is based on the type and availability of the resources. Privately accessed tree is basically owned by an individual who control the ownership right of the tree and getting any kind of access is by permission of the owner. Trees found on common access category belong to community members only while those trees resources found under open/free access are free for use to everyone.

The vegetation of New-Bussa, Borgu Local Government Area of Niger State is a characteristic feature of Guinea savanna vegetation. The area is found in the transition zone of the savanna and contributes to livelihood activities of the inhabitants. This assertion was supported by Mortimore *et al.* (1999) and Muhammed (1997) in their studies that opined that savanna plants contributed immensely to every sector of rural economy of the people found in this vegetation zone. This study therefore, carried out a survey of the indigenous tree species commonly used for domestic purposes by the inhabitants of New-Bussa, Borgu Local Government Area of Niger State.

MATERIALS AND METHODS

New-Bussa is the headquarter of Borgu Local Government Area of Niger state, Nigeria and it is a resettlement town brought about by the construction of the first hydro-electricity dam, the largest on the Niger River and one of the largest in the world. The town is situated on latitude 9^{o} N and 11^{o}N and 2^{o}E and 4^{o}E. As of 2006, New Bussa had an estimated population of 24,449 (National Population Census, 2006). For convenience survey of the indigenous trees commonly used, New Bussa was clustered into three – Kere, Dogongari, and Bussa township. New Bussa is made up of about seven thousand six hundred and seven (7,607) households according to National Primary Health Care (NPHC, 2015). A random sampling method was used because of the homogeneity of the ecological zone, hence 1% of the households were randomly sampled which made up of seventy six (76) households as sample size. Structured questionnaire was used to obtain data on personal characteristics of the respondents, benefits of the indigenous trees species, most important indigenous trees species and methods of regenerating indigenous trees species. Direct personal field observation and interview guide were used to collect data on the various indigenous trees species and the use of their parts. Data were analyzed using descriptive statistics such as frequency and percentage.

RESULTS AND DISCUSSION

Table 1 shows that majority of the respondents (56.6%) are female with their age ranging between 41-50 years (42.1%). This implies that majority of the respondents would be able to use their wealth of experience in responding to the uses of the indigenous tree parts especially when most of them are farmers (56.58%).

Majority of the respondents (68.42%) were also married, 23.68% were single and 5.26% were widows while 2.63% were divorced. This means that indigenous trees are used more by the married as they derive monetary benefits from the sales of fuel wood and charcoal and also use them as source of medicine for their household members.

From direct field observation and interview guide, the respondents have been using the indigenous trees and shrubs for their domestic purposes and treatment of different ailments such as wounds, pile, stomach ache, dysentery, malaria and typhoid since time immemorial.

Table 1: Personal characteristics of the respondents

Variable	Frequency	Percentage
GENDER		
Male	33	43.4
Female	43	56.6
AGE		
21- 30	5	6.6
31- 40	20	26.3
41 – 50	32	42.1
50 and above	19	25.0
MARITAL STATUS		
Married	52	68.42
Single	18	23.68
Widow	4	5.26
Divorced	2	2.63
EDUCATION		
No formal education	35	46.05
Primary	15	19.73
Secondary	6	7.89
Tertiary	20	26.32

Source: Field Survey, 2016

Table 2 reveals the various indigenous tree species found and their uses in the study area. Various parts of the identified trees were of different uses like fruits, flowers, seed, leaves and the bark for various purposes such as medicine and food. The leaves are eaten by human as in the case of *Vitellaria paradoxa* which is a very important tree in the area. For medicinal uses, the plant parts commonly used are the bark, roots and leaves and are usually used for treatment of various diseases such as malaria, diarrhea, dysentery, headache and other bacterial and fungal related diseases. This is in agreement with the report of Irokanulo *et al.* (2009); Olanipekun *et al.* (2010), Fayemi *et al.* (2010) and Ampitan (2013) who conducted similar research in other study areas. The trees in the study area are found to have significant importance to the people as almost every tree or shrub has one or more uses that attract people's attention. The study also revealed that shrub species were planted mainly as hedges in crop fields, as their major purpose was to increase the soil fertility and prevented animals from wandering into their farms. Many farmers were influenced by the experience of their fellow group members, who had species in hedge-row intercropping trials. Upper-story trees were planted primarily for timber and poles as also reported by Oboho (2014).

Table 2: Indigenous tree species and the uses of their parts

Botanical name of plant/ tree	Family	Hausa	Uses
Acacia seyal	Mimosaceae	Kerafi	Leaves and seeds are eaten by wild animals.
Adansonia digitata	Bombaceae	Kuukaa	Young leaves are used as vegetables in preparing soups and sauces. Young leaves are dried very well, ground and added to hot pap, drink to cure diabetics and cough.
Afzelia africana	Leguminoceae	Kawo	Leaves are lopped by Fulani cattle grazers and used to feed cattle, seeds are grinded and used in thickening soup by man.
Annona senegalensis	Annonaceae	Gwandar daajii	The leaves are squeezed and the juice applied to freshly cut wound or sting areas. Curing of worms and diarrhea.
Anogeissus leiocarpus	Combretaceae	Marke	The bark and leaves are used for malaria by boiling the boll, leaves are used dyeing of cloth and leather
Azadirachta indica	Meliaceae	Beddi	Stick are used as chew stick, leaves boiled for treating malaria, body weakness and loss of appetite.
Bombax Costatum	Bombaceae	Kurya	Barks are boiled and drink to prevent and cure pile.
Boswellia dalzielii	Burseraceae	Ararrabi/ Ba-samu	Barks are soaked, drink to cure or prevent stomach upset, diarrhea and fever.
Burkea africana	Leguminoceae	K'urdi/ Kirya	Bark is sliced, pound and applied to old wound. The bark is also soaked or boiled and drink to cure diarrhea.
Combretum	Combretaceae	Wuyan damo	Bark is used to cure stomach upset in young children. The leaves are

molle			boiled and added to pap and drink to cure diarrhea.
Combretum nigricans	Combretaceae	Dagara	Birds feed on the fruits e.g. weavers and blubber birds.
Crossopteryx febrifuga	Rubiaceae	Kaashin awaaki	Root or leaves are boiled drink to cure diarrhea and venereal diseases.
Daniellia oliveri	Leguminoceae	Kadauraa	Barks are soaked in water and drink to cure high blood pressure, roots boiled and drink to cure hernia.
Detarium microcarpum	Caesalpinaceae / leguminoceae	Tauraa	The seeds are eaten by the primates. The ripe fruits are eaten by man. Hard wood uses as fuel. Leaves, stem, bark, fruits, and roots are used to treat tuberculosis, meningitis and diarrhea.
Etanda africana	Mimosoideae/ Caesalpiniaceae	Taawatsaa	Bark is used to cure cough. Wild and domestic animals eat the leaves
Ficus sycomorus	Moraceae	Bauree	The latex is used to treat ring worm in children. Birds feed on the fruit.
Ficus thonningii	Moraceae	Chediya	Leaves are used as livestock feed. The bark is important in local medicine - treating colds, sore throat, dysentery, wounds, constipation, nose bleed, aids parturition and gives sound health. Extracts of the barks are used in baths as a treatment of nervous illness, tuberculosis, paralysis and leprosy. The latex is used for wound fever. The milky latex is dropped into the eye to treat cataract. Large cuttings can be planted close to each other to form living fences and to help control erosion.
Lannea acida	Anacardiaceae	Faaruu	The bark is soaked in water and drink daily to give strength and cure stomach ache. Wood is used in carpentry works
Lannea schimperi	Anacardiaceae	Faaruu	Bark is used to make string or rope and to cure snake bite and root is used as chewing stick to cure toothache.
Parkia biglobosa	Mimosaceae/ Papilionaceae	Doorawaa	The fruits are prepared as spices for seasoning food. The root is cooked with little potash and drink to cure stomach ache. The fruits are eaten by

			animals.
Piliostigma thonningii	Fabaceae/ Caesalpiniolde ae	Kalgoo Cancalii	Leaves are boiled to treat old wound, young leaves chewed and fluid used to treat fresh wound. Leaves used in herbal medicine to treat inflammations, bacterial infections and worms' infestations.
Prosopis africana	Fabaceae/ Mimosoideae	Kirya	Cattle feed on the leaves, the plant is used as chew stick. The seeds are used as spices while cooking.
Vitellaria paradoxa	Sapotaceae	Kadarya	Leaves and fruits are edible. The fruit is pounded to produce Shea butter oil while the stem is used for mortar production

Source: Field Survey, 2016

The benefits of the indigenous tree species to the New-Bussa communities are presented in Table 3. The major benefits derived from the indigenous tree species at various level are food, medicine, firewood, fodder, pole, timber, soil fertility, shade and environmental protection. The study revealed that of the total benefits provide by the trees, food had 19.73% and this is in both seasons and in a variety of forms which include edible nuts and seeds as staple food or main dishes, used as condiments, thickening agents and flavours, leafy vegetables, edible flowers, fresh fruits, fresh seeds, edible oils (*Vitellaria paradoxa*), spices *(Prosopis africana),* fruit drinks etc. Collectively, these forest foods add flavour to the diet while providing protein, energy, vitamins and essential minerals. The contributions of these classes of edible products to the local diet and their potentials in over coming or ameliorating prevailing food problems have been high-lighted in various publications (Ijeomah and Aiyeloja 2010). Medicinal benefits was 13.16% with the indigenous tree species supplying plant products generally considered as the richest drug store. According to Adekunle (2005), ethnomedicine has gained much acceptance among the rural people as the only alternative medicine due to the lack of medical personnel and unaffordable cost of orthodox medicines. Medicine from trees have been used to treat typhoid, malaria fever, stomach upset, dysentery, treatment of wounds to mention but few. As a result, traditional healers and herbal settlers have secured gainful employment in the society (Olagoke and Adekunle, 2008). Environmental benefits of the indigenous tree had 11.84%. The trees have considerable influence on the climate (temperature, wind, evaporation, humidity and rainfall) which in turn affects water supply, wildlife preservation, checking of erosion and aesthetic value which to a large extent contributes to the natural beauty of the tropics. This value has in recent times assumed great significance in eco-tourism (Etukudo, 1994; Ijeomah and Aiyeloja 2010). According to the result obtained for this study, fuelwood accounted for 10.52% of benefit derived from the indigenous trees and plant in this area. The fuelwood is widely used by the respondents as their source of energy as majority of the inhabitants belong to the lower and middle income classes. This result is in agreement with the work of Ijeomah and Aiyeloja, (2010) that confirmed that over 70% of the total energy used for domestic purposes in Nigeria is by the low income class of the rural areas.

Furthermore, the respondents derived about 10.52% of benefits from the indigenous tree species as timbers which are often used for construction purposes such as roofing, furniture and canoe making. Soil fertility had 10.52% as benefit and is derived from the decomposition of leaves, barks, branches or fallen parts of the tree species. The decomposition of the tree parts help to improve soil nutrients, soil infiltration, percolation and microorganisms activities. They are considered as resources mainly because of their high nutrient content that makes them of high value for agriculture. Fodder accounted for about 9.21% of the total benefit from the indigenous tree species commonly used by the people. This is usually obtained by lopping tree leaves as animal feed, examples are *Afzelia africana, Ficus thonningii and Prosopis africana*. Fodder trees contribute in several ways to the overall food security of households. They contribute significantly to domestic livestock production which in turn influence milk and meat supplies (Oboho, 2014; Ijeomah and Aiyeloja 2010). The table also revealed the level of benefit (7.89%) derived from the trees providing shade and protection during hot weather or windy period. This helps to reduce the effect of heat on the humans and animals thereby cooling the environment. However, the least benefit is from pole production (6.58%). Some indigenous trees are used as electricity pole in places where concrete poles are not readily available or when community members cannot afford the cost of concrete poles.

Table 3: Benefits of indigenous tree species to the people

Benefit	Frequency	Percentage %
Food	15	19.73
Medicine	10	13.16
Firewood	8	10.52
Fodder	7	9.21
Pole	5	6.58
Timber	8	10.52
Soil fertility	8	10.52
Shade	6	7.89
Environmental benefit	9	11.84
TOTAL	76	100.00

From the study, *Parkia biglobosa* with 14.47% had the highest frequency of use. This could be due to important values derived from the tree which includes food for animals (fruit is used in feeding cattle, sheep and goats), as food condiment in human food, timber source, used in traditional medicine as an analgesic drug especially against dental pain, provision of ingredients used in treating leprosy and hypertension, antidote to snake bites while the pulped bark is used along with lemon for wound and ulcer. *Vitellaria paradoxa* is another important tree species which had 11.84% frequency of use. This could be due to its high value to the communities as is used as timber, production of mortal, extraction of oil from the seed and Shea butter production. These indigenous tree species have generated employment opportunities, income and means of livelihood for many inhabitants in the study area.

Table 4: Most important indigenous tree species in the study area

Tree species	Frequency	Percentage %
Vitellaria paradoxa	9	11.84
Burkea africana	7	7.89
Annona senegalensis	5	6.58
Anogeissus leiocarpus	2	2.63
Bombax costatum	6	7.89
Parkia biglobosa	11	14.47
Combretum molle	3	3.95
Combretum nigricans	2	2.63
Crossopteryx febrifuga	2	2.63
Cussonia arborea	4	5.63
Daniellia oliveri	1	1.32
Detarium microcarpum	3	3.95
Ficus thonningii	4	5.26
Grewia mollis	5	6.58
Isoberlina doka	2	2.63
Acacia seyal	4	5.26
Boswellia dalzielli	2	2.63
Afzelia africana	2	2.63
Adansonia digitata	2	2.63
TOTAL	76	100

Source: Field Survey 2016

Table 5 presented the methods of regenerating indigenous trees in the study area. Most trees (86.84%) regenerated naturally while artificial regeneration was 13.16%. This result shows that farmers and the people in the study area left the tree and shrubs to nature to regenerate. They explore and exploit the trees with little or no replacement. Direct personal observation and

interview guide gathered that the tree/forests are set on fire during the dry season and regenerate during the raining season. The artificial regeneration is often done by planting trees and shrubs along the edges of the farm land as boundaries demarcation, windbreak, barriers and shade for farm workers.

Table 5: Methods of regenerating indigenous tree species

Methods	Frequency	Percentage %
Natural	66	86.84
Artificial	10	13.16
TOTAL	76	100.00

Source: Field survey, 2016

CONCLUSION

The study area is blessed with ample vegetation resources (trees) that support the life of the people. Indigenous tree species provide basic needs of vegetation resources such as fuel wood, food, fodder/livestock feeds, medicinal herbs, timber, shade and environmental benefits which make it possible for the inhabitants to enjoy their living. Hence, the indigenous tree/shrubs play very important roles in the nutritional and economic life of the people. *Parkia biglobosa* and *Vitellaria paradoxa* are the most important indigenous trees species in the study area and they regenerate naturally.

The study therefore recommends the need to control fuel wood exploitation, discourage bush burning while the communities should embark on massive campaign against felling of tree without replacement. Trees and shrubs with medicinal potentials should be put into intensive research in order to explore their potentials. Governmental and non-governmental organizations should come together with the New Bussa inhabitants to mount programmes that will lead to the sustenance and conservation of indigenous trees and shrubs in this area.

REFERENCES

Adekunle V.A.J (2005): *Trends in forest reservation and biodiversity and conservation in Nigeria.* In environmental sustainability and conservation in Nigeria. In: Okoko E, Adekunle V.A.J and Adeduntan S.A (eds). Environmental conservation in Nigeria. Environmental conservation and research team, Federal University of Technology Akure, Nigeria: 82-90

Agboarumi, B. U (1997). *Borgu Past, Present and Future*. Ilorin, Dada press Limited.

Ajake, A.O. (2012). The role of forest trees in indigenous farming systems as a catalyst for forest resources management in the rural villages of Cross River State, Nigeria. *Global Journal of Human Social Science.* Vol. 12 & 13.

Ampitan, T.A. Ethnobotanical survey of medicinal plants in Biu local government area of Borno state, Nigeria. *Comprehensive Journal of Herbs and Medicinal Plants* Vol. 2(1), pp. 7 – 11. http://www.knowledgebasepublishers.org/maincjhmp.html

Etukudo, I.G Akpan-ebe, I.N, Udofia, A and Attah, V.I (1994). *Element of Forestry*. Uyo, Nigeria. Usanga and Sons Enterprise.

FAO (2008). *Forest and Energy. Key issues*. FAO Forestry paper No 154 Rome.

Fayemi, E.O and Kayode, J. (2010). Ethnomedical plants use in the treatment of skin diseases in some parts of Ekiti State, Nigeria; *Proceedings of the 2nd Biennial National Conference of the Forests and Forest Products Society*, Federal University of Technology Akure, Ondo State, 26th -29th April, 2010 Pp 334-338.

Ijeomah, H.M and Aiyeloja, A.A (2010). *Practical issues in Forest and Wildlife Resources Management.* Green Canopy Consultants, Port Harcourt.

Irokanulo, U.I, Meduna, J.A, Ogundun, N.J; Akor, S, Likita I.B and Yusuf, A.M (2009). *Important Plants of Guinea savanna*. Adasobo Printing Press, New-Bussa, Niger State Pp 59.

Mohammed S. (1997). *Conditions of Access, Use and Management of Trees, Shrubs and Grasses in the semi-arid region of Northern Nigeria*: Unpublished M.Sc. Thesis. Bayero University, Kano Nigeria.

Mortimore, M. and William, M.A. (1999). *Working the Guinea Environment and Society in Northern Nigeria,* London, UK Pp 342.

National Population Census (2006)

National Primary Health Care (2015) New-Bussa, Niger State.

Oboho, E.G (2014). *Silviculture for beginners*. Benin, Uniben Press, University of Benin, Benin City.

Olagoke, A.O and Adekunle V.A.J (2008). Harnessing Forestry Potentials in achieving the Millennium Development Goals in Nigeria. In Onyekwelu J.C, Adekunle V.A.J and Oke D.O (eds): Research for Development in Forestry, Forest products and natural Resources Management. *Proceedings of the Forests and Forest Products Society* held at the Federal University of Technology, Akure, (FUTA), Ondo State, Nigeria. 16-18th, 2008: 121-125.

Olanipekun, M.K and Kayode, J. (2010). Checklist of Botanicals used for the treatment of ruminant diseases in Ekiti State, Nigeria: *Proceedings of the 2nd Biennial National Conference of the Forests and Forest Products Society*. Federal University of Technology Akure, Ondo State, 26th-29th April, 2010: 304-311.

Von Maydell; H.J (1990). *Trees and Shrubs of the Sahel, their characteristics and uses*. Verlag Josef. Magraf Scientific Books, Weakershein. Pp 63.

World Wildlife Foundation (2016). Importance of forests. *http://wwf.panda.org/about_our_earth/deforestation/importance-forests/WWF*