

Original Article

Floristic composition of Wasangare community, Oyo state: Contributions to the flora of South-Western Nigeria

Emmanuel Chukwudi Chukwuma^{1*}, Aderonke Folashade Adio², Akeem Abiodun Kareem²

¹Department of Forest Conservation and Protection, Forestry Research Institute of Nigeria, Jericho Hills, Ibadan, Nigeria,

²Department of Sustainable Forest Management, Forestry Research Institute of Nigeria, Jericho Hills, Ibadan, Nigeria

ABSTRACT

Conservation of biodiversity is unavoidable in the face of climate change and habitat degradation. We undertook a survey to document the avalanche of angiosperms existing around Wasangare community, an isolated area of Oyo state. Most of the plants were identified on the field using taxonomic literatures while some others were taken to the herbarium. One hundred and thirty-eight (138) species in forty-nine (49) families were recorded. The legumes constituted the highest and mostly of small trees and shrubs. About fifty-four (54) species were reported to be useful among the rural dwellers. While this study has shown that the community is not only rich in biodiversity but also embraces some socioeconomic value, it suggests some strategies for conservation to avoid complete loss of biodiversity resulting from overexploitation of the important species.

Keywords: Angiosperm, biodiversity, conservation, legumes

Submitted: 26-06-2019, **Accepted:** 19-07-2019, **Published:** 27-09-2019

INTRODUCTION

Biodiversity assessment has remained an important discussion among scientists around the world, and the West African forests are among the most important biodiversity hotspots in the world as noted by Mittermeier *et al.*^[1] Scholes and Archer^[2] put it clear that the World's land surface is covered by savanna vegetation. Studies have shown that composition and structure of an ecosystem are influenced by a number of factors^[3,4] and prominent among these factors are disturbances which are thought to be key aspect and the cause of local species variation within an ecosystem based on their intensity, scale, and frequency.^[5] The savanna ecosystem is not different, as these areas are chiefly influenced by the availability of water, annual fire, and animal grazing.^[6,7]

However, the knowledge of floristic composition and structure of an ecosystem is useful in identifying and monitoring the state of such vegetation.^[8] This has become very crucial in the face of the ever-increasing threat to the forest ecosystem and eventual species extinction. According to Kimmlins,^[9] we

simply do not know how to recreate a species once it has become extinct. It is, therefore, wise to at least have an inventory of this our biodiversity and to make appropriate recommendation for the preservation of the species which will be large enough to encompass the local variation of genotypes and which will further ensure the survival of the angiosperm genetic diversity of an area.^[10] The present study documents the flora of Wasangare community and also suggests ways to the conservation of the indigenous angiosperm genetic variability of the area.

MATERIALS AND METHODS

Study Site

The study area is located on Latitude 8°49'N and Longitude 3°25'E at the extreme of Oyo state, in Saki West Local Government area [Figure 1] with its headquarters in Saki town. The town has a resettlement center of the second mechanized division of the Nigerian Army. The site is characterized by Guinea savanna vegetation and accommodates some rain forest species. It also has a *Parkia biglobosa* plantation established in 1994 by the Forestry Research Institute of Nigeria.

Address for correspondence: Emmanuel Chukwudi Chukwuma, Department of Forest Conservation and Protection, Forestry Research Institute of Nigeria, Jericho Hills, Ibadan, Nigeria. E-mail: chukwuma.ec@frin.gov.ng

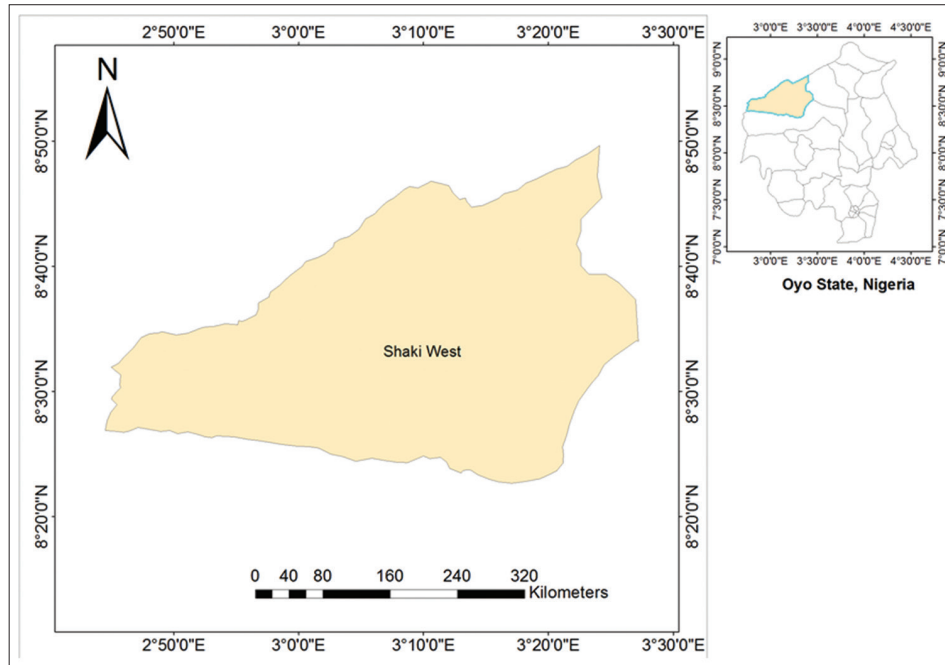


Figure 1: Location map of study area

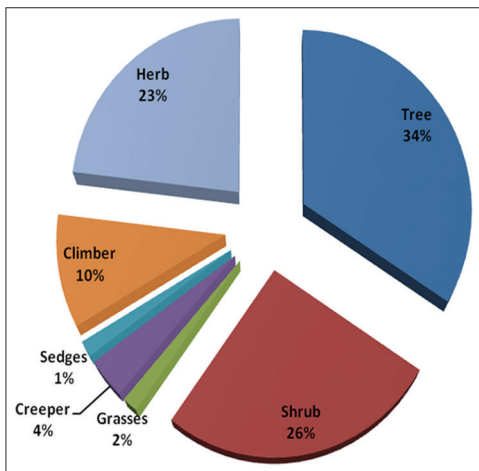


Figure 2: Percentage distribution of species across the identified life forms

Species Enumeration

The survey involved repeated visits to the community for the collection of existing tracheophytes, and most of these species were identified on the field using taxonomic keys provided in Hutchinson *et al.*,^[11] Hopkins and Stanfield,^[12] Stanfield,^[13] Lowe and Stanfield,^[14] Lowe,^[15] and Keay,^[16] while others were taken to the Forest Herbarium Ibadan^[17] for proper identification. The families and habits are also reported.

RESULTS AND DISCUSSION

A total of 138 plant species belonging to 49 families were identified around the community [Table 1]. These species

were dominated by the legumes comprising *Papilionaceae* (15 species), *Caesalpinaceae* (6 species), and *Mimosaceae* (6 species), respectively. Other dominant families include *Asteraceae*, *Rubiaceae*, and *Sapindaceae* with 7 species each represented while *Malvaceae* had 5 species. Three (3) families had 4 species represented, seven (7) families had 3 species, twelve (12) families had 2 species, whole nineteen (19) families had only 1 species represented [Table 2], thus an indication of their importance in ecosystem balancing.

In relation to the life forms or habits, the trees contributed 34% of the total enumeration. Others were the shrubs, herbs, and climbers which had 26%, 23%, and 10%, respectively. Nevertheless, the grasses, creepers, and sedges constituted the remaining 7% of the identified flora [Figure 2].

Further findings presented in Table 3 revealed that 54 species out of the total number recorded have socioeconomic importance such as food, construction activities, local medicine, cosmetics, and animal grazing within the community and adjoining villages. Aside the present report, studies had earlier documented the avalanche of species occurring in Western Nigeria,^[10,18-21] thus reflecting the importance of biological assessment in our society. Nevertheless, while this aspect of science is fundamental to the conservation of biological diversity, reports by some authors^[22,23] are indications that the ecosystems in Nigeria face a greater risk if urgent attention is not considered.

Interestingly, the trees and shrubs had the highest representation across the different plant habits/life forms identified, with equal

Table 1: Species checklist of the study area

Species	Family	Habit
<i>Acacia nilotica</i> (Linn.) Willd.	Mimosaceae	Tree
<i>Achyranthes aspera</i> L.	Amaranthaceae	Herb
<i>Adansonia digitata</i> L.	Bombacaceae	Tree
<i>Azalia africana</i> Sm.	Caesalpiniaceae	Tree
<i>Ageratum conyzoides</i> L.	Asteraceae	Herb
<i>Albizia zygia</i> (DC) J.F. Macbr.	Mimosaceae	Tree
<i>Alchornea cordifolia</i> (Schum and Thonn).	Euphorbiaceae	Shrub
<i>Alectra sessiliflora</i> (Vahl) O. Ktze.	Scrophulariaceae	Herb
<i>Allophylus africanus</i> P.Beauv.	Sapindaceae	Tree
<i>Allophylus spicatus</i> (Poir.) Radlk.	Sapindaceae	Shrub
<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	Amaranthaceae	Creeper
<i>Anacardium occidentale</i> L.	Anacardiaceae	Tree
<i>Aneilema beninense</i> (P. Beauv.) Kunth.	Commelinaceae	Herb
<i>Annona senegalensis</i> Pers.	Annonaceae	Shrub
<i>Anogeissus leiocarpus</i> (DC.) Guill and Perr.	Combretaceae	Tree
<i>Anthocleista djalonenensis</i> A. Chev.	Loganiaceae	Tree
<i>Antiaris toxicaria</i> Loesch.	Moraceae	Tree
<i>Asystasia gangetica</i> (Linn.) T. Anders.	Acanthaceae	Herb
<i>Azadirachta indica</i> A. Juss.	Meliaceae	Tree
<i>Balanites aegyptiaca</i> (L.) Delile.	Balanitaceae	Tree
<i>Baphia nitida</i> Lodd.	Papilionaceae	Tree
<i>Berlinia grandiflora</i> (Vahl et Dalziel) Hutch. et Dalziel.	Caesalpiniaceae	Tree
<i>Blighia sapida</i> Koenig.	Sapindaceae	Tree
<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Herb
<i>Borreria ocymoides</i> (Burm.f.) DC.	Rubiaceae	Herb
<i>Bridelia ferruginea</i> Benth.	Euphorbiaceae	Tree
<i>Byrsocarpus coccineus</i> Schum and Thonn.	Connaraceae	Climber
<i>Calopogonium mucunoides</i> Desv.	Papilionaceae	Creeper
<i>Calotropis procera</i> (Aiton) Dryand.	Asclepiadaceae	Shrub
<i>Canna indica</i> L.	Cannaceae	Shrub
<i>Cardiospermum grandiflorum</i> SW.	Sapindaceae	Climber
<i>Cardiospermum halicacabum</i> L.	Sapindaceae	Climber
<i>Ceiba pentandra</i> (L.) Gaertn.	Bombacaceae	Tree
<i>Centrosema pubescens</i> Benth.	Papilionaceae	Climber
<i>Chromolaena odorata</i> King and Robinson.	Asteraceae	Herb
<i>Clerodendrum capitatum</i> (Willd.) Schumach and Thonn.	Verbenaceae	Shrub
<i>Cnestis ferruginea</i> DC.	Connaraceae	Shrub
<i>Cochlospermum planchonii</i> Hook.f.	Cochlospermaceae	Tree
<i>Cola millenii</i> K.Schum.	Sterculiaceae	Tree
<i>Combretum paniculatum</i> Vent.	Combretaceae	Climber
<i>Commelina benghalensis</i> Linn.	Commelinaceae	Herb
<i>Crotalaria retusa</i> L.	Papilionaceae	Herb
<i>Croton lobatus</i> L.	Euphorbiaceae	Herb

(Contd...)

Table 1: (Continued)

Species	Family	Habit
<i>Croton zambesicus</i> Mull.Arg.	Euphorbiaceae	Tree
<i>Cyanotis lanata</i> Benth.	Commelinaceae	Herb
<i>Daniellia oliveri</i> (Rolfe et Dalziel) Hutch. et Dalziel.	Caesalpiniaceae	Tree
<i>Desmodium velutinum</i> (Wild) DC.	Papilionaceae	Shrub
<i>Dichrostachys cinerea</i> Brenan et Brummit.	Mimosaceae	Shrub
<i>Dioscorea dumetorum</i> (Kunth) Pax.	Dioscoreaceae	Climber
<i>Eriosema glomeratum</i> (Guill. et Perr.) Hook.f.	Papilionaceae	Herb
<i>Euphorbia hirta</i> L.	Euphorbiaceae	Herb
<i>Ficus exasperata</i> Vahl.	Moraceae	Tree
<i>Ficus ovata</i> Vahl.	Moraceae	Tree
<i>Ficus sur</i> Forssk.	Moraceae	Tree
<i>Fimbristylis dichotoma</i> (Linn.) Vahl.	Cyperaceae	Sedge
<i>Gardenia aqualla</i> Stapf et Hutch.	Rubiaceae	Shrub
<i>Glyphaea brevis</i> (Spreng.) Monachino.	Tiliaceae	Shrub
<i>Gomphrena celosioides</i> Mart.	Amaranthaceae	Herb
<i>Gossypium barbadense</i> L.	Malvaceae	Shrub
<i>Grewia mollis</i> Juss.	Tiliaceae	Shrub
<i>Harungana madagascariensis</i> Lam. ex Poir.	Hypericaceae	Shrub
<i>Hybanthus enneaspermus</i> (L.) F. Muell.	Violaceae	Shrub
<i>Hymenocardia acida</i> Tul.	Hymenocardiaceae	Shrub
<i>Hypoestes verticillaris</i> (L.f.) Sol. ex Roem. et Schult.	Acanthaceae	Herb
<i>Hyptis suaveolens</i> (L.) Poit.	Lamiaceae	Herb
<i>Icacina trichantha</i> Oliv.	Icacinaceae	Herb
<i>Imperata cylindrica</i> P. Beauv.	Poaceae	Grass
<i>Indigofera hirsuta</i> L.	Papilionaceae	Shrub
<i>Indigofera tinctoria</i> L.	Papilionaceae	Herb
<i>Ipomoea cairica</i> (L.) Sweet.	Convolvulaceae	Climber
<i>Ipomoea involucrata</i> P.Beauv.	Convolvulaceae	Climber
<i>Jatropha curcas</i> L.	Euphorbiaceae	Shrub
<i>Jatropha gossypifolia</i> L.	Euphorbiaceae	Shrub
<i>Khaya senegalensis</i> (Desv.) A.Juss.	Meliaceae	Tree
<i>Kigelia africana</i> (Lam.) Benth.	Bignoniaceae	Tree
<i>Lawsonia inermis</i> L.	Lythraceae	Shrub
<i>Lecaniodiscus cupanioides</i> Planch. ex Benth.	Sapindaceae	Tree
<i>Leptadenia hastata</i> Vatke.	Asclepiadaceae	Climber
<i>Leucaena leucocephala</i> (Lam.) de Wit.	Mimosaceae	Tree
<i>Lonchocarpus sericeus</i> (Poir.) HB and K.	Papilionaceae	Tree
<i>Lophira lanceolata</i> Tiegh. ex Keay.	Ochnaceae	Tree
<i>Macrosphyra longistyla</i> (DC.) Hiern.	Rubiaceae	Shrub
<i>Malvastrum coromandelianum</i> (L.) Garcke.	Malpighiaceae	Herb
<i>Mangifera indica</i> L.	Anacardiaceae	Tree
<i>Maranthes polyandra</i> (Benth.) Prance.	Chrysobalanaceae	Tree
<i>Mariscus alternifolius</i> Vahl.	Cyperaceae	Sedge

(Contd...)

Table 1: (Continued)

Species	Family	Habit
<i>Mimosa pigra</i> L.	Mimosaceae	Climber
<i>Mitracarpus scaber</i> Zucc. ex Schult. Et Schult.	Rubiaceae	Herb
<i>Nauclea latifolia</i> Sm.	Rubiaceae	Shrub
<i>Newbouldia laevis</i> (P. Beauv.) Seem. ex Bureau.	Bignoniaceae	Tree
<i>Ocimum gratissimum</i> L.	Lamiaceae	Herb
<i>Oplismenus burmannii</i> Beauv.	Poaceae	Grass
<i>Parinari curatellifolia</i> Planch. ex Benth.	Chrysobalanaceae	Tree
<i>Parkia biglobosa</i> (Jacq.) G. Don.	Mimosaceae	Tree
<i>Parquetina nigrescens</i> (Afzel.) Bullock.	Periplocaceae	Climber
<i>Passiflora foetida</i> L.	Passifloraceae	Creeper
<i>Paullinia pinnata</i> L.	Sapindaceae	Climber
<i>Pavetta corymbosa</i> (DC.) F. N. Williams.	Rubiaceae	Shrub
<i>Pericopsis laxiflora</i> (Benth. ex Baker) Meeuwen.	Papilionaceae	Tree
<i>Phyllanthus amarus</i> Schum. et Thonn.	Euphorbiaceae	Herb
<i>Piliostigma thonningii</i> (Schum.) Milne-Redh.	Caesalpiniaceae	Shrub
<i>Pseudocedrela kotschyi</i> (Schweinf.) Harms.	Meliaceae	Tree
<i>Pterocarpus erinaceus</i> Poir.	Papilionaceae	Tree
<i>Rytigynia nigerica</i> (S. Moore) Robyns.	Rubiaceae	Shrub
<i>Scoparia dulcis</i> L.	Scrophulariaceae	Herb
<i>Secamone afzelii</i> (Roem. et Schult.) K. Schum.	Asclepiadaceae	Climber
<i>Securidaca longipedunculata</i> Fresen.	Polygalaceae	Shrub
<i>Securinega virosa</i> (Roxb. ex Wild) Baill.	Euphorbiaceae	Shrub
<i>Senna hirsuta</i> L.	Caesalpiniaceae	Shrub
<i>Sesbania sesban</i> (L.) Merr.	Papilionaceae	Shrub
<i>Sida cordifolia</i> L.	Malvaceae	Herb
<i>Sida corymbosa</i> R. E. Fr.	Malvaceae	Herb
<i>Sida linifolia</i> Juss. ex Cav.	Malvaceae	Herb
<i>Smilax anceps</i> Willd.	Smilacaceae	Climber
<i>Solanum torvum</i> Sw.	Solanaceae	Shrub
<i>Spilanthes filicaulis</i> (Schum. et Thonn.) C. D. Adams.	Asteraceae	Creeper
<i>Spondias mombin</i> L.	Anacardiaceae	Tree
<i>Stachytarpheta cayennensis</i> (L. H. Rich) Schum.	Verbenaceae	Herb
<i>Sterculia setigera</i> Delile.	Sterculiaceae	Tree
<i>Sterculia tragacantha</i> Lindl.	Sterculiaceae	Tree
<i>Strychnos spinosa</i> Lam.	Loganiaceae	Tree
<i>Tamarindus indica</i> L.	Caesalpiniaceae	Tree
<i>Tephrosia bracteolata</i> Guill. et Perr.	Papilionaceae	Herb
<i>Tephrosia linearis</i> (Willd.) Pers.	Papilionaceae	Herb
<i>Tephrosia pedicellata</i> Baker.	Papilionaceae	Creeper
<i>Terminalia avicennioides</i> Guill. et Perr.	Combretaceae	Tree
<i>Terminalia macroptera</i> Guill. and Perr.	Combretaceae	Tree
<i>Tridax procumbens</i> L.	Asteraceae	Herb
<i>Triumfetta rhomboidea</i> Jacq.	Tiliaceae	Shrub

(Contd...)

Table 1: (Continued)

Species	Family	Habit
<i>Urena lobata</i> L.	Malvaceae	Shrub
<i>Uvaria chamae</i> P. Beauv.	Annonaceae	Shrub
<i>Vernonia ambigua</i> Kotschy et Peyr.	Asteraceae	Shrub
<i>Vernonia amygdalina</i> Delile.	Asteraceae	Shrub
<i>Vernonia cinerea</i> L.	Asteraceae	Herb
<i>Vitellaria paradoxa</i> C. F. Gaertn.	Sapotaceae	Tree
<i>Vitex doniana</i> Sweet.	Verbenaceae	Tree
<i>Voacanga africana</i> Stapf.	Apocynaceae	Tree
<i>Waltheria indica</i> L.	Sterculiaceae	Shrub

Table 2: Species distribution across families

Family	No. of species	% species composition
<i>Acanthaceae</i>	2	1.4
<i>Amaranthaceae</i>	3	2.2
<i>Anacardiaceae</i>	3	2.2
<i>Annonaceae</i>	2	1.4
<i>Apocynaceae</i>	1	0.7
<i>Asclepiadaceae</i>	3	2.2
<i>Asteraceae</i>	7	5.1
<i>Balanitaceae</i>	1	0.7
<i>Bignoniaceae</i>	2	1.4
<i>Bombacaceae</i>	2	1.4
<i>Caesalpiniaceae</i>	6	4.3
<i>Cannaceae</i>	1	0.7
<i>Chrysobalanaceae</i>	2	1.4
<i>Cochlospermaceae</i>	1	0.7
<i>Combretaceae</i>	4	2.9
<i>Commelinaceae</i>	3	2.2
<i>Connaraceae</i>	2	1.4
<i>Convolvulaceae</i>	2	1.4
<i>Cyperaceae</i>	2	1.4
<i>Dioscoreaceae</i>	1	0.7
<i>Euphorbiaceae</i>	9	6.5
<i>Hypericaceae</i>	1	0.7
<i>Hymenocardiaceae</i>	1	0.7
<i>Icacinaceae</i>	1	0.7
<i>Lamiaceae</i>	2	1.4
<i>Loganiaceae</i>	2	1.4
<i>Lythraceae</i>	1	0.7
<i>Malpighiaceae</i>	1	0.7
<i>Malvaceae</i>	5	3.6
<i>Meliaceae</i>	3	2.2
<i>Mimosaceae</i>	6	4.3

(Contd...)

Table 2: (Continued)

Family	No. of species	% species composition
<i>Moraceae</i>	4	2.9
<i>Nyctaginaceae</i>	1	0.7
<i>Ochnaceae</i>	1	0.7
<i>Papilionaceae</i>	15	10.9
<i>Passifloraceae</i>	1	0.7
<i>Periplocaceae</i>	1	0.7
<i>Poaceae</i>	2	1.4
<i>Polygalaceae</i>	1	0.7
<i>Rubiaceae</i>	7	5.1
<i>Sapindaceae</i>	7	5.1
<i>Sapotaceae</i>	1	0.7
<i>Scrophulariaceae</i>	2	1.4
<i>Smilacaceae</i>	1	0.7
<i>Solanaceae</i>	1	0.7
<i>Sterculiaceae</i>	4	2.9
<i>Tiliaceae</i>	3	2.2
<i>Verbenaceae</i>	3	2.2
<i>Violaceae</i>	1	0.7
Total	138	100

number (21). This is also the case for grass and sedge identified but with the least number recorded [Figure 3]. In furtherance, the abundance of legumes as witnessed in this study corroborated the fact that Africa has a vast array of indigenous legumes, ranging from large rainforest trees to small annual herbs, as listed in Lock.^[24] However, these species are facing big threats as the study area faces several disturbances from cattle rearers and villagers in the surrounding environments who fetch the woods for firewood production. With such, it is considered that immediate economic benefits exceed those for conservation, as put by Ferraro and Kiss^[25] and Kiss.^[26] It is, therefore, our opinion that proper management strategies should be put in place to salvage the rich but endangered ecosystem. Provision of basic socioeconomic amenities such as

Table 3: Some identified socioeconomic species

Species	Uses
<i>Adansonia digitata</i> L.	Food
<i>Azelia africana</i> Sm.	Timber
<i>Anacardium occidentale</i> L.	Food, medicine
<i>Annona senegalensis</i> Pers.	Food, medicine
<i>Anogeissus leiocarpus</i> (DC.) Guill and Perr.	Firewood
<i>Azadirachta indica</i> A. Juss.	Medicine
<i>Balanites aegyptiaca</i> (L.) Delile.	Medicine
<i>Berlinia grandiflora</i> (Vahl et Dalziel) Hutch. et Dalziel	Timber, medicine
<i>Blighia sapida</i> Koenig	Food, medicine
<i>Bridelia ferruginea</i> Benth.	Medicine
<i>Calotropis procera</i> (Aiton) Dryand.	Food, medicine
<i>Ceiba pentandra</i> (L.) Gaertn.	Timber, medicine
<i>Cochlospermum planchonii</i> Hook. f.	Medicine
<i>Cola millenii</i> K. Schum.	Food medicine
<i>Croton zambesicus</i> Mull. Arg.	Medicine
<i>Daniellia oliveri</i> (Rolfe et Dalziel) Hutch. et Dalziel.	Timber
<i>Euphorbia hirta</i> L.	Medicine
<i>Ficus exasperata</i> Vahl.	Medicine
<i>Ficus sur</i> Forssk.	Medicine
<i>Gardenia aqualla</i> Stapf et Hutch.	Food
<i>Gossypium barbadense</i> L.	Cotton, medicine
<i>Hybanthus enneaspermus</i> (L.) F. Muell.	Medicine
<i>Hymenocardia acida</i> Tul.	Firewood, medicine
<i>Icacina trichantha</i> Oliv.	Medicine
<i>Indigofera hirsuta</i> L.	Dye
<i>Indigofera tinctoria</i> L.	Dye
<i>Jatropha curcas</i> L.	Medicine
<i>Jatropha gossypifolia</i> L.	Medicine
<i>Khaya senegalensis</i> (Desv.) A. Juss.	Timber
<i>Kigelia africana</i> (Lam.) Benth.	Medicine
<i>Lawsonia inermis</i> L.	Medicine
<i>Lophira lanceolata</i> Tiegh. ex Keay.	Firewood
<i>Mangifera indica</i> L.	Food, medicine
<i>Newbouldia laevis</i> (P. Beauv.) Seem. ex Bureau.	Medicine
<i>Parkia biglobosa</i> (Jacq.) G. Don.	Food
<i>Parquetina nigrescens</i> (Afzel.) Bullock.	Medicine
<i>Paullinia pinnata</i> L.	Medicine
<i>Phyllanthus amarus</i> Schum. et Thonn.	Medicine
<i>Piliostigma thonningii</i> (Schum.) Milne-Redh.	Medicine

(Contd...)

Table 3: (Continued)

Species	Uses
<i>Pseudocedrela kotschyi</i> (Schweinf.) Harms.	Firewood
<i>Pterocarpus erinaceus</i> Poir.	Firewood
<i>Securidaca longipedunculata</i> Fresen.	Medicine
<i>Solanum torvum</i> Sw.	Medicine
<i>Sterculia tragacantha</i> Lindl.	Timber
<i>Strychnos spinosa</i> Lam.	Food
<i>Terminalia avicennioides</i> Guill. et Perr.	Timber
<i>Terminalia macroptera</i> Guill and Perr.	Timber
<i>Urena lobata</i> L.	Medicine
<i>Vernonia amygdalina</i> Delile.	Food
<i>Vitellaria paradoxa</i> C. F. Gaertn.	Food, medicine
<i>Vitex doniana</i> Sweet.	Food, medicine
<i>Waltheria indica</i> L.	Medicine
<i>Ocimum gratissimum</i> L.	Food
<i>Anthocheista djalonenis</i> A Chev.	Timber

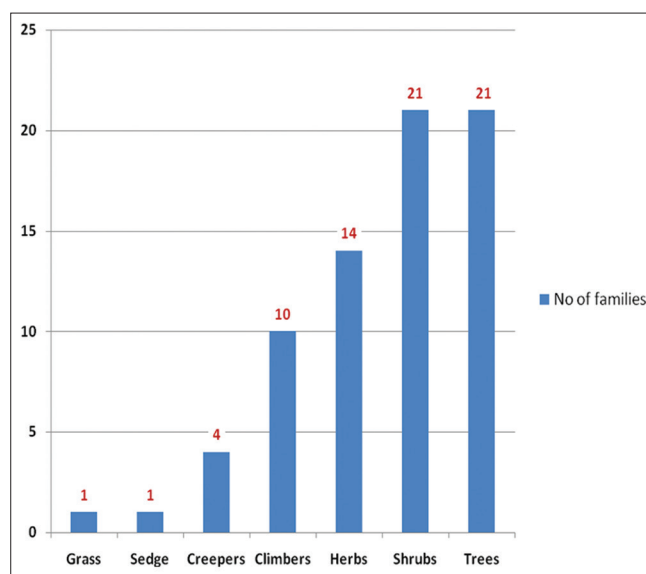


Figure 3: Number of plant families across the life forms

electricity, schools, good roads, portable water, and hospitals^[19] would be good incentives to the surrounding communities, if conservation of the area is to be well achieved.

CONCLUSION

This study has recorded a total of 138 angiosperms in Wasangare community. The trees and shrubs constitute the most useful of all the plant habits identified. This study has also shown the importance of biodiversity assessment and monitoring and has added to the existing records of such study in South-western Nigeria. While we cannot rule out

the continuous dependence on plants for survival, it is more important to consider the sustainable collection and use of these important species, to avoid the complete disappearance of biodiversity.

REFERENCES

- Mittermeier RA, Gil PR, Hoffman M, Pilgrim J, Brooks T, Mittermeier CG, *et al.* Hotspots Revisited: Earth's Biologically Richest and most Endangered Terrestrial Ecoregions. Mexico: CEMEX; 2004. p. 390.
- Scholes RJ, Archer SR. Tree-grass interactions in savannas. *Annu Rev Ecol Syst* 1997;28:517-44.
- Klinge H, Adis J, Worbes M. The vegetation of a seasonal Várzea in the lower solimões river, Brazilian amazon. *Acta Amazon* 1995;25:201-20.
- Wittmann F, Junk WJ. Sapling communities in amazonian white-water forests. *J Biogeogr* 2003;30:1533-44.
- Laidlaw M, Kitching R, Goodall K, Small A, Stork N. Temporal and spatial variation in an Australian tropical rainforest. *Austral Ecol* 2007;32:10-20.
- Sankaran M, Hanan NP, Scholes RJ, Ratnam J, Augustine DJ, Cade BS, *et al.* Determinants of woody cover in African savannas. *Nature* 2005;438:846-9.
- Cesh GP, Edwards PJ, Nenterink HO. Why is abundance of herbaceous legumes low in African savanna? A test with twomodel species. *Biotropica* 2010;42:580-9.
- Ssegawa P, Nkuutu DN. Diversity of vascular plants on Sseese Islands in Lake Victoria central Uganda. *Afr J Ecol* 2006;44:22-9.
- Kimmlins JP. *Forest Ecology*. New York: Macmillan Publishing Company; 1987. p. 531.
- Soladoye MO, Chukwuma EC, Fagbenro JA, Adelagun EO. A checklist of angiosperm diversity of Bowen university campus, Iwo, Osun State, Nigeria. *J Plant Sci* 2015;10:244-52.
- Hutchinson J, Dalziel JM, Keay RW, Hepper FN, Alston AH. *Flora of West Tropical Africa*. Vol. 1-3. London, UK: Crown Agents for Oversea Governments and Administrations; 1958-1972.
- Hopkins B, Stanfield DP. *Savanna Trees of Nigeria*. Ibadan: University Press; 1966.
- Stanfield DP. *Grassess of Nigeria*. Zaria: Ahmadu Bello University Press; 1970.
- Lowe J, Stanfield DP. *The Flora of Nigerian Sedges*. Nigeria: Ibadan University Press; 1974. p. 114.
- Lowe J. *The Flora of Nigerian Grasses*. 2nd ed. Ibadan: Ibadan University Press; 1989. p. 326.
- Keay RW. *Trees of Nigeria*. New York: Oxford Science Publication; 1989. p. 476.
- Holmgren PK, Keuken W, Schofield EK. *Index Herbariorum Part I. The Habaria of the World*. 8th ed. New York, Utrecht: Regnum Vegetable; 1990. p. 120.
- Soladoye MO, Sonibare MA, Nadi AO, Alabi DA. Indigenous angiosperm biodiversity of olabisi onabanjo university permanent site. *Afr J Biotechnol* 2005;4:554-62.
- Soladoye MO, Asafa BA, Sonibare MA, Ibhanebhor GA, Chukwuma EC. Angiosperm flora of kamuku national park: A Northern guinea savanna protected area in Nigeria. *Eur J Sci Res* 2011;58:326-40.
- Ariwaodo JO, Adeniji KA, Akinyemi OD. The vascular flora on asamagbe stream bank, forestry research institute of Nigeria (FRIN) premises, Ibadan, Nigeria. *Ann Biol Res* 2012;3:1757-63.
- Soladoye MO, Ikotun T, Chukwuma EC, Ariwaodo JO, Ibhanebor GA, Agbo-Adediran OA, *et al.* Our plants, our heritage: Preliminary survey of some medicinal plant species of South Western University Nigeria campus, Ogun State, Nigeria. *Ann Biol Res* 2013;4:27-34.
- Gbile ZO, Ola-Adams BA, Soladoye MO. Endangered species of the Nigerian flora. *Niger J For* 1981;8:14-20.
- Oguntala AB, Soladoye MO, Ugbogu OA, Fasola TR. A Review of Endangered Tree Species of Cross River State and Environs. *Proceedings of the Workshop on Rain Forest of South Eastern Nigeria and South Western Cameroon*, October 20-24, 1996, Calabar, Nigeria: 1996. p. 120-5.
- Lock JM. *Legumes of Africa: A Check List*. Kew, England: Royal Botanic Gardens; 1989.
- Ferraro PJ, Kiss A. Direct payments to conserve biodiversity. *Science* 2002;298:1718-9.
- Kiss A. Is community-based ecotourism a good use of biodiversity conservation funds? *Trends Ecol Evol* 2004;19:232-7.



This work is licensed under a Creative Commons Attribution Non-Commercial 4.0 International License.