



Comparative Assessment of Tree Species Diversity and Conservation Status in Farin Dutse and Wardawa Forest Reserves, Jigawa State, Nigeria

***¹Saka M. G., ²Aujara Y. I. and ³Salami K. D.**

¹Department of Forestry and Wildlife Management, Modibbo Adama University Yola, Nigeria

²Department of Forestry Technology Binyaminu Usman Polytechnic Hadejia, Jigawa State, Nigeria

³Department of Forestry and Wildlife Federal University Dutse, Jigawa State, Nigeria

*Correspondence Author: foristsalam@yahoo.com, yauidrisaujara@gmail.com

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ABSTRACT

This study evaluated the diversity and conservation status of tree species in Farin Dutse and Wardawa forest reserves in Jigawa State, Nigeria. The study focused on the assessment of conservation status and species diversity, identifying threatened species to protect biodiversity, promote ecosystem resilience, and ensure long-term sustainability of ecosystems. A systematic sampling technique of two line transects of 1km length with a 400m interval was employed, which consisted of 4 plots of 100 x 100m each at an interval of 200m was laid alternately along each transect. The Simpson diversity index revealed high diversity in both reserves, with Farin Dutse exhibiting the highest diversity index ($D = 0.985$) and Wardawa ($D = 0.970$). The Sorensen's similarity index showed a high floristic similarity (89.01%) between the two reserves, indicating a shared species composition. The IUCN conservation status assessment revealed that 60% of tree species were of "least concern," while 6% were threatened (2% vulnerable, 2% endangered, and 2% near threatened). Notably, 29% of species were data deficient, requiring further evaluation. This study emphasizes the importance of sustainable management and conservation practices to preserve the ecological integrity and biodiversity of these forest reserves, ensuring the long-term availability tree species. Effective conservation strategies are essential to protect these valuable ecosystems.

Keywords: Diversity, Sorensen's similarity index, conservation status, Tree species, Forest reserve.

INTRODUCTION

Forests are the most diverse terrestrial ecosystem endowed with wide array of tree species which have economic, social and cultural roles in the lives of many local communities (Wunder, 2021). Tree is a vital resource as they help in the improvement of human welfare and have economic, social and environmental benefits; they play important roles in the economic development of many societies (Okonkwo et al., 2021). They are

generally exploited for three main products namely, for: (1) quality timber, (2) non-wood products, (like bamboo, resin, spices, fruits, and other food) and (3) fire wood charcoal. However, the increased demand for forest resources and the technology adopted for the extraction of forest products, without corresponding advancement in sustainable management practices, have caused severe deforestation and degradation of forest

resources in various parts of the world (Jimoh, 2021).

Forest reserves as an engine of growth that propel economic activities especially for a nation that is endowed with abundant forest resources (FAO, 2018). Globally, more than two billion people are dwelling in forests, depending on forest resources for subsistence, income and livelihood security (Ahenkan and Boon, 2021). Non-timber forest products are considered to be vital for sustaining rural livelihoods, reducing rural poverty, biodiversity conservation and facilitating rural economic growth (Maske et al., 2021). Timber is a term that has several connotations and in many regions of the world is used synonymously with the term lumber. Most often, timber refers to either unfilled trees or trees that have been harvested which retain their bark or other characteristics for aesthetic purposes (Awotedu et al., 2021). Diversity and biodiversity are widely used terms in ecology and natural resource management. Despite this, they are not easily defined and different authors apply these terms with varying connotations (Jimoh, 2021). The term biodiversity, in particular, has the dubious honour of being widely used but rarely defined. Is it simply the number of species or is it something more (Jimoh, 2021). Conservation status of a species is an indicator of the likelihood of plant species continuing to survive either in the present day or the future (Dantani and Ige, 2024). Conservation status indicates whether the group still exists and how likely it is to become extinct in the near future (Patrick et al., 2022). The focus of this study is to assess the conservation and diversity status of Tree species in two forest reserves of Jigawa state, Nigeria.

MATERIALS AND METHODS

Study Area

This study was conducted in the Farin Dutse and Wardawa Forest Reserves which are located in Jigawa State (Fig. 1). It is situated in the Northern-Western part of the Nigeria (Figure 1). It lies between latitudes $11^{\circ}14'N$ and $13^{\circ}09'N$ and between longitudes $8.00^{\circ}E$ to $10^{\circ}15'E$ (Mikail, 2021). Farin Dutse forest reserve is situated in Gwaram, Jigawa, Nigeria. Its geographical coordinates are latitudes $11^{\circ}10'0''N$ to $11^{\circ}12'0''N$ and Longitude $9^{\circ}52'0''E$ to $9^{\circ}54'0''E$ (Figure 2) and its original name (with diacritics) is Farin Dutse and covering about 200 hectares of wardawa forest reserve which is richly endowed with natural resources; the village has vast agricultural land. A major resource of significance is the Forest Reserve. Wardawa Forest Reserve is located on latitude $12^{\circ}42'0''N$ to $12^{\circ}42'30''N$ and Longitude $8^{\circ}12'0''E$ to $8^{\circ}12'30''E$ to within the low Sahel savanna (Figure 2) and covers a total land area of 17,984 ha. The climate of these hotspots falls within wet and dry season, generally hot semi-arid tropics. The rainy season starts at the end of May and lasts till September with maximum rainfall in August. The average annual rainfall is 650mm (Jibo et al., 2018; Bidoli et al., 2012) and the minimum and maximum rainfall range between 600 to 1000mm (Ogunbela et al, 2024) whereas the mean minimum and the mean maximum temperature are 32 to $41^{\circ}C$. The soil is well known to be fertile ranging sandy to loamy, pH ranges from 6.07 to 6.72. Nitrogen content ranges from 0.63 to 1.64 gkg^{-1} phosphorus ranges from 6.25 to 12.04 $mgkg^{-1}$ and potassium ranges from 0.18 to 0.63 $cmolkg^{-1}$ (Jibo et al., 2021; Garba et al., 2021; Salami et al., 2021; Salami et al, 2019).

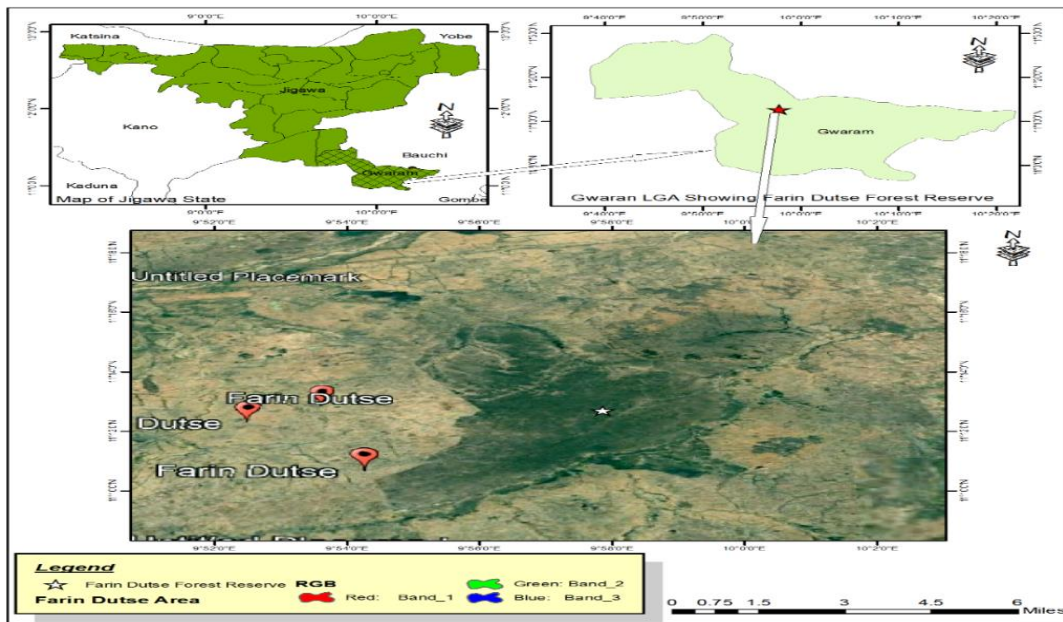


Figure 1: Map of Jigawa State Showing Farin Dutse Forest Reserve

Source: GIS Department, Modibo Adamawa University

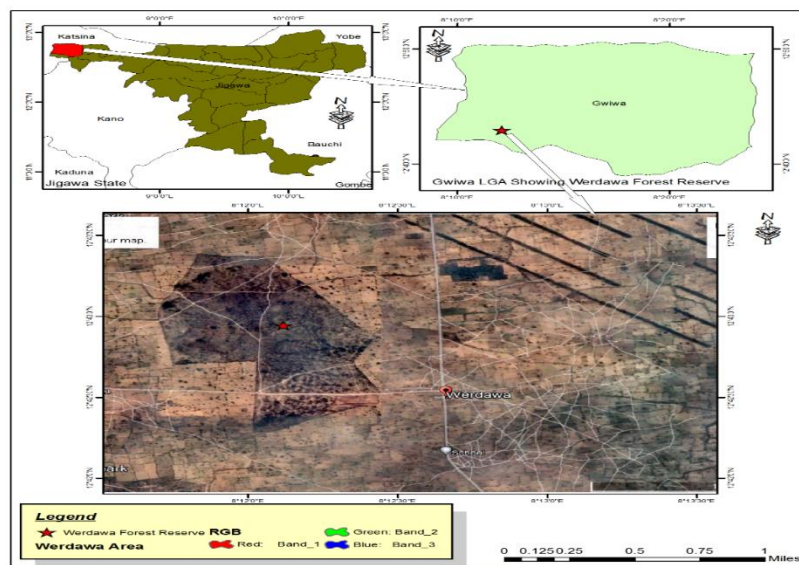


Figure 2: Map of Jigawa State Showing Wadawa Forest Reserve

Source: GIS Department, Modibo Adamawa University

Sampling Technique

Systematic sampling method (Figure 3) was adopted for this study. In each Forest Reserve, four transects of 1km (1000 m) length was laid at an interval of 400 m. In

each transect, four (4) plots of 100 x100 m was laid alternately along each transect at 200 m interval for identification of tree species.

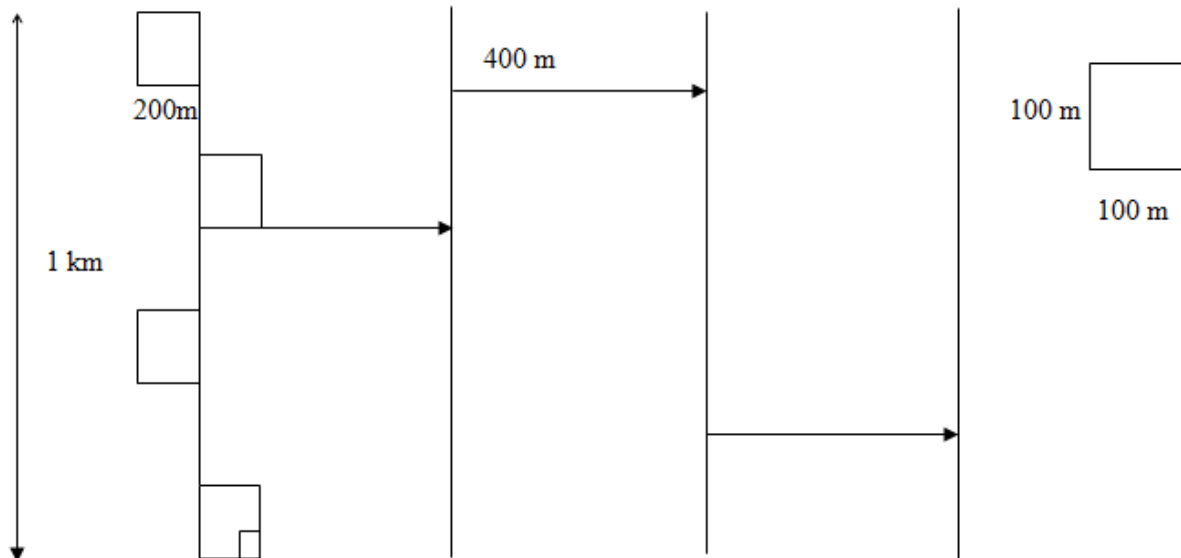


Figure 3: Layout of the Sampling Plot

Data Collection

In each sampled plot, identification, complete enumeration and measurement of all tree species with diameter ≥ 10 cm at breast height (Dbh) were carried out. In each plot, any non-timber forest product species encountered was identified and recorded, using Voucher specimen.

Data Analysis

Descriptive Statistic was used for presentation of all Non-Timber Forest Products of the study area. Simpson diversity was employed for assessing the diversity of Tree species as adopted by Saka et al. (2020).

$$\text{Simpson index } D = 1 - \left(\frac{\sum n(n-1)}{N(N-1)} \right) \quad 1$$

Where:

n = total number of organisms of a particular species,

N = the total number of organisms of all species

Sorensen's species similarity index (SSI) between six forest reserves was calculated using equation as adopted by Saka et al. (2020)

$$\text{SSI} = \frac{2C}{A+B} \times 100\% \quad 2$$

Where:

C = Sum of number of species in both sites A and B

A = number of species at sites A

B = number of species at sites B

RESULTS AND DISCUSSION

Diversity of Tree Species in Farin Dutse and Wardawa Forest Reserves

Farin Dutse forest reserve comprises of ninety (90) tree species from ninety (90) genera and thirty-eight (38) families

(Appendix 1) with a diversity index of D-0.985 while that of Wardawa forest reserve comprises of sixty-seven (67) species from thirty-three (33) family and fifty-four (54) genera with diversity index of D-0.976. Findings on Tree species diversity indicated that both the Forest Reserves contained the greatest diversity in terms of non-timber forest products and timber products species. The diversity of tree species was high across the two forest reserves, although, there were disproportionately distributed among tree species diversity across the forest reserves. Thus, Farin Dutse has the highest Simpson diversity index of D-0.985 and Wardawa forest reserve had the least diversity index of

D-0.976 (Table 1). According to Magurran, (2004), who stated that the value of D ranges from 0 to 1. The findings revealed that the forest reserves are highly diverse in term of tree species because the diversity of the two study reserves is close to 1. Probably the even distribution of tree species may have given rise to a uniform structure in the forest reserves. This result of this study is in line with that of Saka et al., (2020) who reported varying Simpson diversity index of 0.981, 0.969 and 0.970 for upland, swamp and Fadama respectively among the three different habitats in their study.

Table 1: Diversity Index of the Two Selected Forest Reserve

Diversity Index		Sorensen's Similarity Index
Farin Dutse Forest Reserve	Wardawa Forest Reserve	
0.976	0.985	89.01%

Source: Field Survey (2024)

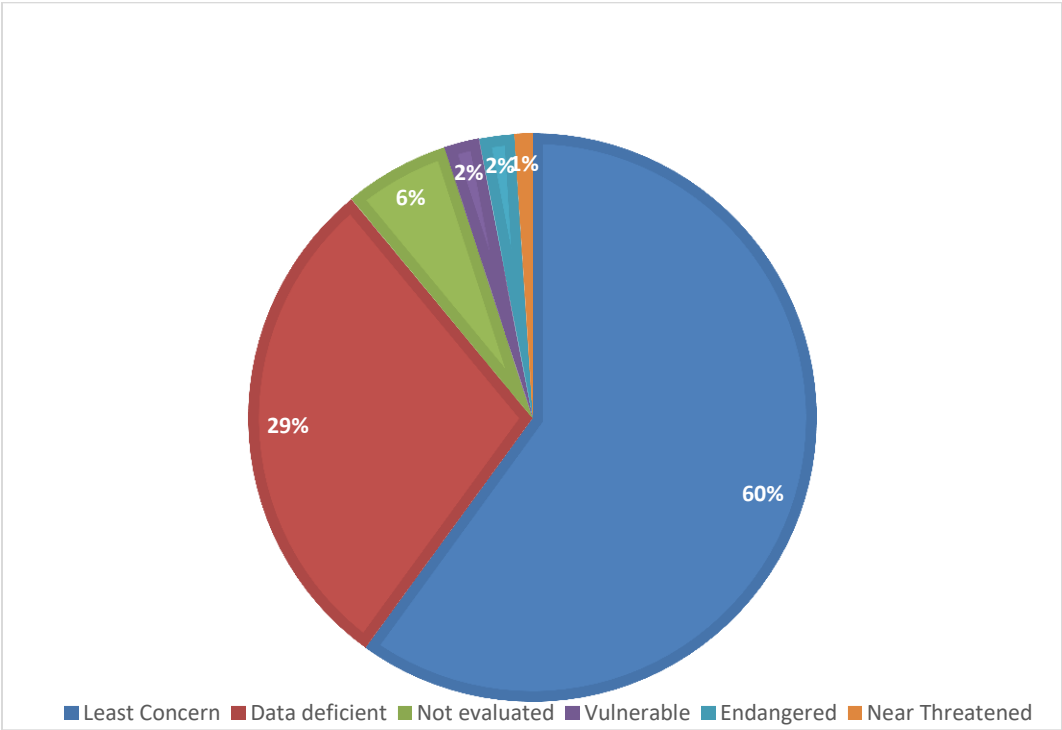


Figure 4: Percentage Conservation status of the threatening species

The results of plant species similarity index between Farin Dutse forest reserve and Wardawa forest reserve shows that Farin Dutse and Wardawa forest reserve have a relatively common plant species. This implies that there is higher number of common tree species in the study forest reserves. However, Aigbe et al, (2015), reported the Sorenson's similarity index of the floristic comparison between Afi River and Oban Forest Reserve is 84%, implying very high floristic similarity in their constituent. The conservation status results show that 60% of species are of Least Concern, while 29% are Data Deficient, highlighting the need for further research. Vulnerable and Endangered species each comprise 2%, indicating conservation efforts are necessary (Figure 5). According to the IUCN Red List categories and criteria (IUCN, 2012) and Rodrigues et al. (2006), these classifications inform conservation priorities and strategies to protect biodiversity.

CONCLUSION

The study on Tree species diversity in Farin Dutse and Wardawa forest reserves revealed a high level of diversity in both reserves, with Farin Dutse having a slightly higher Simpson diversity index ($D = 0.985$) compared to Wardawa ($D = 0.976$). The reserves share a significant number of common plant species, indicating similarities in their floristic composition. The conservation status assessment showed that the majority of species are categorized as Least Concern (60%); while 29% of the species are classified as Data Deficient, this emphasizes the need for further research and conservation efforts. The findings underscore the importance of these forest reserves in maintaining biodiversity and highlight the necessity for sustainable management practices to preserve their ecological integrity for future generations.

CONFLICT OF INTRESTS

The authors have not declared any conflict of interest

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APPENDIX 1: Tree Species diversity in the Farin Dutse and Wardawa Forest Reserve

Farin Dutse Reserve					Wardawa Forest Reserve				
S/N	Scientific Name	Family	No. of plants	n(n-1)	S/N	Scientific Name	Family	No. of plants	n(n-1)
1	<i>Acacia hockii</i>	Mimosaceae	9	72	1	<i>Acacia hockii</i>	Mimosaceae	40	1,560
2	<i>Acacia erioloba</i>	Mimosaceae	21	420	2	<i>Acacia erioloba</i>	Mimosaceae	20	380
3	<i>Acacia oerfota</i>	Mimosaceae	13	156	3	<i>Acacia sieberiana</i>	Mimosaceae	70	4,830
4	<i>Acacia Senegal</i>	Mimosaceae	40	1560	4	<i>Adansonia digitata</i>	Bombacaceae	60	3,540
5	<i>Acacia sieberianaz</i>	Mimosaceae	60	3540	5	<i>Alysicarpus bibuksa</i>	Grammenia	30	870
6	<i>Adansonia digitata</i>	Bombacaceae	50	2450	6	<i>Alysicarpus vagtnalis</i>	Fabaceae	45	1,980
7	<i>Albizia chevalieri</i>	Mimosaceae	28	756	7	<i>Androphogan gayanus</i>	Grammenia	80	6,320
8	<i>Alysicarpus vaginalis</i>	Grammenia	70	4830	8	<i>Anogeissas leicarpus</i>	Combretaceae	42	1,722
9	<i>Alysicarpus vagtnalis</i>	Fabaceae	120	14280	9	<i>Anona senegalensis</i>	Annonaceae	17	272
10	<i>Androphogan gayanus</i>	Grammenia	130	16770	10	<i>Azadirachta indica</i>	Meliaceae	120	14,280
11	<i>Anogeissas leicarpus</i>	Combretaceae	120	14280	11	<i>Balanites egyptiaca</i>	Balanitaceae	60	3,540
12	<i>Anona senegalensis</i>	Annonaceae	40	1560	12	<i>Bombax costatum</i>	Bombacaceae	30	870
13	<i>Balanites egyptiaca</i>	Balanitaceae	70	4830	13	<i>Cassia italic</i>	Calsalpiniceae	54	2,862
14	<i>Bombax costatum</i>	Bombacaceae	40	1560	14	<i>Cassia singuena</i>	Calsalpiniceae	42	1,722
15	<i>Borassus aegytiaca</i>	Palmea	30	870	15	<i>Cassia occidentallis</i>	Calsalpiniceae	40	1,560
16	<i>Borassus aethiopum</i>	Palmea	20	380	16	<i>Cassia seamia</i>	Calsalpiniceae	200	39,800
17	<i>Bowellia dizzelia</i>	Buraceraceae	30	870	17	<i>Cassia tora</i>	Calsalpiniceae	49	2,352
18	<i>Burkea Africana</i>	Calsalpiniceae	50	2450	18	<i>Ceiba pentandra</i>	Malvaceae	30	870
19	<i>Cassia italic</i>	Calsalpiniceae	60	3540	19	<i>Centella astiatica</i>	Apiaceae	13	156
20	<i>Cassia singuena</i>	Calsalpiniceae	50	2450	20	<i>Combretum glutinosum</i>	Combretaceae	40	1,560
21	<i>Cassia occidentallis</i>	Calsalpiniceae	50	2450	21	<i>Combretum micranthum</i>	Combretaceae	19	342
22	<i>Cassia tora</i>	Calsalpiniceae	70	4830	22	<i>Combretum molle</i>	Combretaceae	49	2,352
23	<i>Celtis infergriflora</i>	Combretaceae	70	4830	23	<i>Combretum nioroense</i>	Combretaceae	40	1,560
24	<i>Centella astiatica</i>	Apiaceae	69	4692	24	<i>Cyperus rotundus</i>	Cyperaceae	36	1,260
25	<i>Combretum glutinosum</i>	Combretaceae	68	4556	25	<i>Daniellia oliveri</i>	Fabaceae	20	380
26	<i>Combretum micranthum</i>	Combretaceae	60	3540	26	<i>Detaruim macrocarpum</i>	Calsalpiniceae	40	1,560
27	<i>Combretum molle</i>	Combretaceae	100	9900	27	<i>Dichrostachys peneria</i>	Leguminosae	40	1,560
28	<i>Combretum nioroense</i>	Combretaceae	39	1482	28	<i>Digitaria debilis</i>	Grammenia	30	870
29	<i>Corchorus tridens</i>	Tiliaceae	60	3540	29	<i>Diospyros mespiliiformis</i>	Ebenaceae	39	1,482
30	<i>Cyperus rotundus</i>	Cyperaceae	40	1560	30	<i>Entada Africana</i>	Leguminosae	60	3,540
31	<i>Daniellia oliveri</i>	Fabaceae	20	380	31	<i>Entandra Africana</i>	Ebenaceae	30	870

32	<i>Detaruim macrocarpum</i>	Calsalpiniceae	60	3540	32	<i>Eucalyptus camaldulensis</i>	Myrtaceae	160	25,440
33	<i>Dichrostachys peneria</i>	Leguminosae	49	2352	33	<i>Euphorbia basalefera</i>	Euphorbiaceae	28	756
34	<i>Digitaria debilis</i>	Grammenia	90	8010	34	<i>Euphorbia poisson</i>	Euphorbiaceae	20	380
35	<i>Diospyros mespiliformis</i>	Ebenaceae	42	1722	35	<i>Ficus polita</i>	Moraceae	4	12
36	<i>Entada Africana</i>	Leguminosae	70	4830	36	<i>Ficus sycomorus</i>	Moraceae	5	20
37	<i>Entandra Africana</i>	Ebenaceae	29	812	37	<i>Guiera senegalensis</i>	Combretaceae	29	812
38	<i>Erthrina senegalensis</i>	Fabaceae	19	342	38	<i>Gyanandropis gyannadra</i>	Capparidaceae	35	1,190
39	<i>Euphorbia basalefera</i>	Euphorbiaceae	90	8010	39	<i>Hyphaene thebaica</i>	Palmea	38	1,406
40	<i>Euphorbia lateriflora</i>	Euphorbiaceae	70	4830	40	<i>Imperata cylindrical</i>	Grammenia	39	1,482
41	<i>Euphorbia poisson</i>	Euphorbiaceae	80	6320	41	<i>Ipomoe muricata</i>	Convolvulaceae	16	240
42	<i>Ficus polita</i>	Moraceae	17	272	42	<i>Khayasenegalensis</i>	Meliaceae	80	6,320
43	<i>Ficus sycomorus</i>	Moraceae	19	342	43	<i>Lannea acida</i>	Anacardiaceae	60	3,540
44	<i>Fiscus thonningi</i>	Moraceae	15	210	44	<i>Lantana camara roxb</i>	Verbanaceae	10	90
45	<i>Fiscus platyphylla</i>	Moraceae	15	210	45	<i>Leptadenia hastate</i>	Apocynaceae	15	210
46	<i>Gardenia aqualla</i>	Fabaceae	20	380	46	<i>Mayterus senegalensis</i>	Celastraceae	49	2,352
47	<i>Guiera senegalensis</i>	Combretaceae	40	1560	47	<i>Merremia tridentate</i>	Convolvulaceae	30	870
48	<i>Gyanandropis gyannadra</i>	Capparidaceae	150	22350	48	<i>Mimosa pigra</i>	Fabaceae	20	380
49	<i>Hyphaene thebaica</i>	Palmea	60	3540	48	<i>Mitracarpus scaber</i>	Rubaceae	66	4,290
50	<i>Imperata cylindrical</i>	Grammenia	120	14280	50	<i>Momordica balsamina</i>	Cucurbitacea	39	1,482
51	<i>Ipomoe muricata</i>	convolvulaceae	80	6320	51	<i>Ocinum bassillia</i>	Lamiaceae	43	1,806
52	<i>Jatropha curcas</i>	Euphorbiaceae	50	2450	52	<i>Parkia biglobosa</i>	Mimosaceae	40	1,560
53	<i>Lantana camara roxb</i>	Verbanaceae	80	6320	53	<i>Pistia stratiotes</i>	Araceae	30	870
54	<i>Lawsonia innermis</i>	lythraceae	12	132	54	<i>Sienna alata</i>	Calsalpiniceae	35	1,190
55	<i>Leptadenia hastate</i>	Apocynaceae	80	6320	55	<i>Solanum nigrum</i>	Steculiaceae	22	462
56	<i>Mangifera indica</i>	Anacardiaceae	30	0	56	<i>Spondia nombin</i>	Steculiaceae	20	380
57	<i>Mayterus senegalensis</i>	Celastraceae	70	4830	57	<i>Steculia virosa</i>	Euphorbiaceae	20	380
58	<i>Merremia tridentate</i>	convolvulaceae	40	1560	57	<i>Sterusperum kunthianum</i>	Bignoniaceae	34	1,122
59	<i>Mimosa pigra</i>	Fabaceae	120	14280	59	<i>Strophanthus gratus</i>	Apocynaceae	29	812
60	<i>Mitracarpus scaber</i>	Rubaceae	80	6320	60	<i>Tamarindus indica</i>	Tamaraceae	30	870
61	<i>Momordica balsamina</i>	Cucurbitacea	46	2070	61	<i>Terminalia avicenniodes</i>	Malvaceae	20	380
62	<i>Ocinum bassillia</i>	Lamiaceae	60	3540	62	<i>Vitellaria paradoxa</i>	Mimosaceae	19	342
63	<i>Parinari macrophylla</i>	chrysobalanaceae	80	6320	63	<i>Vitex doniana</i>	Verbanaceae	20	380
64	<i>Parkia biglobosa</i>	Mimosaceae	30	870	64	<i>Ximenia americana</i>	Olaceae	2	2
65	<i>Phoenix dactylifera</i>	Palmea	18	306	65	<i>Ziziphus microphylla</i>	Rhannaceae	49	2,352
66	<i>Pistia stratiotes</i>	Araceae	90	8010	66	<i>Ziziphus mucronata</i>	Rhannaceae	15	210

67	<i>Prosopis Africana</i>	Fabaceae	50	2450	67	<i>Zizyphus spina</i>	Rhannaceae	50	2,450
68	<i>Pterocarpus erinaceus</i>	Fabaceae	80	6320					
69	<i>Sclerocarya birrea</i>	Anacardiaceae	70	4830					
70	<i>Securideae longependilata</i>	Polygalceae	50	2450					
71	<i>Sienna alata</i>	Calsalpiniceae	100	9900					
72	<i>Solanum nigrum</i>	Steculiaceae	20	380					
73	<i>Sphaeranthus angustifolius</i>	Grammenia	100	9900					
74	<i>Sphaeranthus angustifollius</i>	Asteraceae	60	3540					
75	<i>Spondia mombin</i>	Steculiaceae	40	1560					
76	<i>Steculia settigera</i>	Steculiaceae	90	8010					
77	<i>Steculia virosa</i>	Euphorbiacea	99	9702					
78	<i>Sterusperum kunthianum</i>	Bignoniaceae	50	2450					
79	<i>Strophanthus gratus</i>	Apocynaceae	70	4830					
80	<i>Strychnos spinacrist</i>	Loganiaceae	50	2450					
81	<i>Tamarindus indica</i>	Tamaraceae	40	1560					
82	<i>Terminalia avicenniodes</i>	Malvaceae	20	380					
83	<i>Terminalia avicennioide</i>	Combretaceae	50	2450					
84	<i>Tridax procumbens</i>	Grammenia	80	6320					
85	<i>Vitellaria paradoxa</i>	Mimosaceae	29	812					
86	<i>Vitex doniana</i>	Verbanaceae	40	1560					
87	<i>Ximenia americana</i>	Olaceae	40	1560					
88	<i>Ziziphus microphylla</i>	Rhannaceae	58	3306					
89	<i>Ziziphus mucronate</i>	Rhannaceae	20	380					
90	<i>Zizyphus spina</i>	Rhannaceae	60	3540					

APPENDIX 2: Conservation Status of Tree species in the selected forest reserves

S/N	Scientific Name	Family	Conservation status
1	<i>Acacia hockii</i>	Mimosaceae	LC
2	<i>Acacia atathecantha</i>	Mimosaceae	LC
3	<i>Acacia erioloba</i>	Mimosaceae	LC
4	<i>Acacia karro</i>	Mimosaceae	LC
5	<i>Acacia macrostachya</i>	Mimosaceae	LC
6	<i>Acacia oerfota</i>	Mimosaceae	LC
7	<i>Acacia senegal</i>	Mimosaceae	LC
8	<i>Acacia sieberiana</i>	Mimosaceae	LC
9	<i>Adansonia digitate</i>	Malvaceae	LC
10	<i>Albizia chevalieri</i>	Mimosaceae	LC
11	<i>Alysicarpus vaginalis</i>	Grammenia	LC
12	<i>Androphogan gayanus</i>	Grammenia	DD
13	<i>Anogeissas leicarpus</i>	Combretaceae	LC
14	<i>Anona senegalensis</i>	Annonaceae	LC
15	<i>Azadirachta indica</i>	Meliaceae	LC
16	<i>Balanites egyptiaca</i>	Balanitaceae	NE
17	<i>Bombax costatum</i>	Bombacaceae	LC
18	<i>Borassus aegyptinca</i>	Palmea	LC
19	<i>Borassus aethiopum</i>	Palmea	LC
20	<i>Cassia italic</i>	Calsalpiniceae	LC
21	<i>Cassia occidentallis</i>	Calsalpiniceae	LC
22	<i>Cassia seamia</i>	Calsalpiniceae	LC
23	<i>Cassia singuena</i>	Calsalpiniceae	LC
24	<i>Cassia tora</i>	Calsalpiniceae	LC
25	<i>Ceiba pentandra</i>	Bombacaceae	LC
26	<i>Celtis infergriflora</i>	Combretaceae	DD
27	<i>Centella asiatica</i>	Apiaceae	DD
28	<i>Combretum glutinosum</i>	Combretaceae	DD
29	<i>Combretum micranthum</i>	Combretaceae	DD
30	<i>Combretum molle</i>	Combretaceae	DD
31	<i>Combretum nioroense</i>	Combretaceae	DD
32	<i>Cyperus rotundus</i>	Cyperaceae	DD
33	<i>Dalbergia sissoo</i>	Fabaceae	LC
34	<i>Daniellia oliveri</i>	Calsalpiniceae	LC
35	<i>Detaruim macrocarpum</i>	Calsalpiniceae	LC
36	<i>Dichrosachys penerea</i>	Fabaceae	LC
37	<i>Digitaria debilis</i>	Grammenia	DD
38	<i>Diospyros mespiliformis</i>	Ebenaceae	LC
39	<i>Entandra africana</i>	Ebenaceae	LC
40	<i>Erthrina senegalensis</i>	Fabaceae	LC
41	<i>Erthroleum suaveolens</i>	Fabaceae	DD
42	<i>Eucalyptus camaldulensis</i>	Myrtaceae	NT
43	<i>Euphorbia basalefera</i>	Euphorbiaceae	LC
44	<i>Euphorbia lateriflora</i>	Euphorbiaceae	LC
45	<i>Euphorbia poisson</i>	Euphorbiaceae	LC
46	<i>Faiderbia albida</i>	Fabaceae	LC
47	<i>Ficus polita</i>	Moraceae	NE
48	<i>Ficus sycomorus</i>	Moraceae	NE
49	<i>Fiscus thonningi</i>	Moraceae	NE
50	<i>Fiscus platyphylla</i>	Moraceae	NE
51	<i>Gardenia aqualla</i>	Fabaceae	DD
52	<i>Guiera senegalensis</i>	Combretaceae	DD
53	<i>Guinea grass</i>	Grammenia	DD
54	<i>Gyanandropis gyannandra</i>	Cleomaceae	DD

55	<i>Hyphaene thebaica</i>	Palmea	LC
56	<i>Imperata cylindrical</i>	Grammenia	DD
57	<i>Indigofera arrtecta</i>	Fabaceae	DD
58	<i>Ipomoea muricata</i>	Grammenia	DD
59	<i>Jatropha curcas</i>	Euphorbiacea	LC
60	<i>Khaya senegalensis</i>	Meliaceae	VU
61	<i>Lannea acida</i>	Anacardiaceae	EN
62	<i>Lantana camara roxb</i>	Verbanaceae	LC
63	<i>Leptademia hastate</i>	Asclepidaceae	DD
64	<i>Mangifera indica</i>	Anacardiaceae	DD
65	<i>Mayterus senegalensis</i>	Celastraceae	LC
66	<i>Merremia tridentate</i>	Convolvulaceae	DD
67	<i>Mimosa pigra</i>	Fabaceae	LC
68	<i>Mitracarpus scaber</i>	Rubaceae	LC
69	<i>Mitraginia innermis</i>	Rubaceae	LC
70	<i>Momordica balsamina</i>	Cucurbitaceae	LC
71	<i>Moringa olefera</i>	Moringaceae	LC
72	<i>Ocinum bassillia</i>	Lamiaceae	LC
73	<i>Paninari macropylla</i>	Steculiaceae	LC
74	<i>Parkia biglobosa</i>	Mimosaceae	LC
75	<i>Pistia stratiotes</i>	Araceae	DD
76	<i>Phoenix dactylifera</i>	Palmea	LC
77	<i>Philostigma reticulatum</i>	Fabaceae	NE
78	<i>Prosopis africana</i>	Mimosaceae	LC
79	<i>Pterocarpus erinaceus</i>	Fabaceae	EN
80	<i>Rauvolfia caffra</i>	Apocynaceae	LC
81	<i>Sclerocarya birrea</i>	Anacardiaceae	DD
82	<i>Securideae longependilata</i>	Polygalceae	DD
83	<i>Sienna alata</i>	Lamiaceae	LC
84	<i>Solanum nigrum</i>	Steculiaceae	LC
85	<i>Sphaeranthus angustifolius</i>	Asteraceae	DD
86	<i>Spondia nombin</i>	Steculiaceae	LC
87	<i>Steculia settigera</i>	Steculiaceae	DD
88	<i>Steculia virosa</i>	Steculiaceae	DD
89	<i>Strophanthus gratus</i>	Apocynaceae	DD
90	<i>Sterusperum kunthianum</i>	Bignoniaceae	DD
91	<i>Strychnos spinacrist</i>	Loganiaceae	DD
92	<i>Tamarindus indica</i>	Tamaraceae	LC
93	<i>Terminalia avicenniode</i>	Combrataceae	LC
94	<i>Tridax procumbens</i>	Grammenia	LC
95	<i>Vitellaria paradoxa</i>	Mimosaceae	VU
96	<i>Vitex doniana</i>	Verbanaceae	LC
97	<i>Ximenia Americana</i>	Olaceae	LC
98	<i>Ziziphus microphylla</i>	Rhannaceaea	LC
99	<i>Ziziphus mucronata</i>	Rhannaceaea	LC
100	<i>Zizyphus spina</i>	Rhannaceaea	LC