Global Advanced Research Journal of Agricultural Science (ISSN: 2315-5094) Vol. 9(1) pp. 019-026, January, 2020 Issue.
Available online http://garj.org/garjas/home

Full Length Research Paper

Assessment of the Checklist and Regeneration Status Potential of Species Seedlings and Saplings of Baturiya Hadejia Wetland Game Reserve, Jigawa State, Nigeria

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Accepted 24 November, 2019

This study evaluates the checklist of tree species and regeneration status potential of species seedlings and saplings of Baturiya hadejia wetland game reserve. To determine the checklist and regeneration status potential of species seedlings and saplings, three Plots of 100mx100m^2 were systematically laid in three habitats (Fadama, Upland and Swampy) sub plots of 5mx5m^2 in a quadrate were laid to assess species seedlings and saplings regeneration potential. A total of 83 species belonging to 63 genera and 36 families were recorded. Of this 12 species appeared in (3) habitats, 22 species in (2) habitats and 49 species in (1). *Fabaceae* family were recorded with highest represented trees of (15 species) *Moraceae* (8 species), *Rubiaceae* (5 species), and the least represented are families were recorded with (1 specie) in Table 1 respectively. sub plots of 5mx5m^2 in a quadrate were laid to assess species seedlings and saplings regeneration status saplings were found to be with density of 77.1% stems/ha, and Seedlings with density of 34.7% stems/ha, the finding also recorded regeneration status potential in term of Good, Fair, Poor and Not regenerate. However study suggests conservation strategies to protect woody species against anthropogenic pressures, rather than following a strict protectionist approach in the management of the game.

Keywords: Checklist, Tree species, Regeneration, Seedlings and Saplings.

INTRODUCTION

In Nigeria and the other tropical world, several forest regeneration methods have been attempted. Tree species composition as an ecosystem, is a habitat for biodiversity represent the very foundation of human existence as it produces goods and services for the most fundamental human needs. For instance, forest trees provide resources like food, traditional medicine, energy, timber, shade, clear air, fresh water, food, fuel wood and habitats for other organisms. It also provides recreational, psychological, emotional and spiritual fulfillment (FAO, 2016). Globally,

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52% of the total forests are in tropical regions and they are known to be the most important areas in terms of biodiversity. Local communities living nearby depend on these trees for their livelihoods. The rapid increase in human population near forest ecosystems has increased threats of degradation and fragmentation to this ecosystem, (David, 2014).

Checklist is an attempt to list all of the vascular plant and bryophytes of the Guinnas in an effort to encourage further research. Checklist also helped to determine the accurate information on the particular forest reserves area. Tree species inventory and diversity studies help to understand the species composition diversity status of forests which also determine the information for forest conservation. Prior to forest management operations, biodiversity inventories also gives the researcher hint on the nature and distribution of diversity resources of the region being managed. Such biodiversity inventories are best integrated with the timber resource inventories in order that forest management operations can be planned, (Sivakumar, *et al,* 2014).

Regeneration is the ability for a cell tissue or organism to recover from damage. It can also be used to describe the ability of an ecosystem specifically, the environment and its living population to recover from damage. Regeneration is a key to sustainable forestry and can be accomplished through two basic approaches: Allowing a forest to regenerate is crucial (FAO, 2016). Regeneration is basic to the continuation of forest, as well as to the afforestation of treeless land. Regeneration can take place through self-sown seed ("natural regeneration"), by artificially sown seed, or by planted seedlings. In either case, the performance of regeneration depends on its growth potential and the degree to which its environment allows the potential to be expressed (Grossnickle, 2000). Seed, of course, is needed for all regeneration modes, both for natural or artificial sowing and for raising planting stock in the nursery."Human-assisted natural regeneration" means establishment of a forest age class from natural seeding or sprouting in an area after harvesting in that area through selection cutting, shelter (or seed-tree) harvest, soil preparation, or restricting the size of a clear-cut stand to secure natural regeneration from the surrounding trees Shiva (2007).

The process of natural regeneration involves the renewal of forests by means of self-sown seeds, root suckers, or coppicing. In natural forests, conifers rely almost entirely on regeneration through seed. Most of the broadleaves, however, are able to regenerate by the means of emergence of shoots from stumps (coppice) and broken stems (Dutta, 2013).

Seedlings are young plant (Sporophyte) developing out of a plant embryo, seedlings also refers to a very young tree which is less then 1 inch 2.5cm in context to DBH. Sapings are plant which is generally marked by 1 to 6 inches 2.5 to 15cm in context to DBH. Seedling and Saplings are two different juvenile life stage of a tree, (Raghubanshi and Tripathi 2009). Nigeria is among the ten countries with the highest annual net negative change rates from 2000- 2005 degrading at the rate of 3.3% (FAO, 2006).

MATERIALS AND METHODS

The research was carried out in Baturiya Hadejia Wetland Game Reserve, the wetland covers approximately about 101,095ha and it is located 20km south east of Hadejia. It lies between latitude $11^0$20'- 12^0 35' N and longitudes $10^0$10'- 10^0 40'E. Mean annual temperature varies from 28°C - 34°C, the pattern of rainfall varied markedly across the state. In the south east (where the reserve is located) mean annual rainfall range between 600mm to 850mm, (Ramsar, 2008). The vegetation of the study area is of Sudano- sahelian type, comprising of varieties of *Acacia spp, Adansonia spp, Tamarindus spp, Mitrogynus spp, Diospirus spp Faidhebia spp Ficus spp* and *Hyphaene spp* e.t.c and the vegetational cover varies being dense with taller trees, (JSMARP, 2016)

A reconnaissance survey was made in the study area, general features of reserve were assess and different sites in the area was identified for selection of sample plots. Three plots of 100 x 100m^2 from the habitat (Upland, Fadama and Swampy) was made. All the tree species were enumerated by direct counting and consolidated check list of all the trees species in the sample plots was made. Plant entries include species, family and Hausa or vernacular names of every living plant species encountered on the plots. Specie with dbh ≥ 15cm were enumerated as matured trees, (Akinyemi *et al.,* 2001). Fifteen sub plots of 5mx5m^2 in a quadrate were laid to assess species seedlings and saplings regeneration status. A survey was conducted to ascertain the possibility of self regeneration by the parent trees. Regeneration status was determined by enumerating the trees stands in each sub plots within the three main plots

Regeneration Status was calculated by the below formula as cited by Curlis and Inrosh (1950), and adopted by Ashish *et-al,*(2013) as;

$$RP = \frac{Numberofseedlings/saplings\ per\ /hectare}{Numberofparenttreesperhectare}$$

RESULTS

Results of the checklist of tree species diversity and regeneration statyus of specie seedlings and saplings in the study area are presented below. The checklist was recorded with a total of 83 species belonging to 63 genera and 36 families. Of this 12 species appeared in three (3) habitats, followed by 22 species in two (2) habitats and 49 species in one (1) habitat as shown in table 1 with the

Table 1: Check list of Tree species diversity, family and Hausa names of Baturiya hadejia wetland game reserve

S/no	Species	Family	Hausa names	Habitat I	Habitat II	Habitat III
2	*Acacia nilotica*	Fabaceae	Bagaruwa	✓	X	✓
3	*Acacia polyacantha*	Fabaceae	Ƙar-Kara	X	✓	X
4	*Acacia Senegal*	Fabaceae	Ɗakwara	✓	✓	✓
5	*Acacia seyel*	Fabaceae	Dushe	X	✓	X
6	*Acacia sieberana*	Fabaceae	Farar Kaya	✓	✓	✓
7	*Adansonia digitata*	Malvaceae	Kuka	✓	✓	✓
8	*Adenium obsesum*	Apolynaceae	Ƙarya	✓	X	X
9	*Albizia chevalieri*	Mimosoideae	Katsari	X	✓	X
10	*Anogeissus lieocarpus*	Combretaceae	Marke	✓	✓	✓
11	*Anona senegalensis*	Annonaceae	Ɠwadar Daji	X	✓	X
12	*Aristolochis albida*	Aristolochiaceae	Maɗacin Ƙasa	✓	X	X
13	*Azadirachta indica*	Meliaceae	Darbejiya	✓	X	✓
14	*Balanite aegyptiaca*	Zygophyllaceae	Aduwa	✓	✓	X
15	*Balsamodendrum africanum*	Burseraceae	Dashi	✓	X	X
16	*Bauhinia rufescens*	Caesalpiniodeae	Matsa-Tsagi	X	✓	✓
17	*Borassus aethiopum*	Arecaceae	Giginya	✓	✓	✓
18	*Boseia senegalensis*	Capparaceae	Tabila	✓	X	X
19	*Boswellia odorata*	Burseraceae	Hano	X	✓	✓
20	*Calotrospis procera*	Apocynaceae	Tunfafiya	X	X	✓
21	*Canavalia ensiformis*	Fabaceae	Barankachi	✓	X	✓
22	*Capparis tomentosa*	Capparaceae	Ƙabdodo	X	✓	X
23	*Cassia singueana*	Fabaceae	Rumfu	✓	X	X
24	*Celosia argentea*	Amaranthaceae	Rimi	✓	X	X
25	*Celtis integrifolia*	Ulmaceae	Zuwo	✓	X	X
26	*Clerodendrum capticatum*	Verbenaceae	Bambarwa	✓	✓	X
27	*Cochlospermum tinctorium*	Cochlospermaceae	Rawuya	X	X	✓
28	*Combretum glutinosum*	Combretaceae	Kantakara	X	✓	✓
29	*Combretum micranthum*	Dioscoreaceae	Geza	X	✓	✓
30	*Crosspteryx febrifusa*	Rubiaceae	Giginyar Mata	✓	X	X
31	*Cycatophyta cycad*	Cycadaceae	Shuwaki	X	✓	X
32	*Daniellia oliverii*	Caesalpioidaceae	Maje	✓	✓	✓
33	*Detarium microcarpus*	Fabaceae	Taura	✓	X	X
34	*Diospyros mespiliformis*	Ebenaceae	Kanya	✓	X	✓
35	*Eragrostis gangetica*	Poaceae	Durburwa	X	X	✓
36	*Euphorbia kamerunica*	Euphorbiaceae	Kyarana	X	X	✓
37	*Euphorbia poissoni*	Euphorbiaceae	Tinya	X	X	✓
38	*Faidhebia albida*	Fabaceae	Gawo	✓	✓	✓
39	*Ficus abutilifolia*	Moraceae	Yande	X	✓	X
40	*Ficus iteophylla*	Moraceae	Shirinya	X	X	✓
41	*Ficus lutea*	Moraceae	Ɓauren Kurmi	X	✓	X
42	*Ficus polita*	Moraceae	Durumi	✓	✓	✓
43	*Ficus ptatyphylla*	Moraceae	Gamji	X	✓	X
44	*Ficus sycomorus*	Moraceae	Ɓaure	✓	X	X
45	*Ficus thonningii*	Moraceae	Cheeɗiya	✓	✓	X
46	*Ficus vallis- choude*	Moraceae	Lubiya	X	✓	X
47	*Gardenia aqualla*	Rubiaceae	Gauɗe	X	✓	X

Table 1: Continue

48	***Guiera senegalensis***	**Combretaceae**	**Sabara**	**X**	✓	**X**
49	*Hippocratea guineensis*	Celastraceae	Gwaɗayi	✓	X	X
50	*Hyphaene thebaica*	Arecaceae	Goruba	✓	X	✓
51	*Isoberlinia doka*	Fabaceae	Doka	✓	X	✓
52	*Khaya senegalensis*	Meliacea	Maɗacci	✓	X	✓
53	*Lannea microcarpa*	Anacardiaceae	Faru	✓	✓	✓
54	*Mangifera indica*	Anacardiaceae	Mangwaro	X	✓	X
55	*Mimosa pigra*	Fabaceae	Ƙaidaji	X	✓	✓
56	*Mitragyna inermis*	Rubiaceae	Giyyaya	X	✓	X
57	*Nauclea diderrichii*	Rubiaceae	Tafashiya	X	✓	X
58	*Nauclea latifolia*	Rubiaceae	Gidido	✓	X	✓
59	*Olea europea*	Oleaceae	Zaitun	✓	X	X
60	*Oxytenanthera abyssinica*	Poaceae	Gora	✓	X	✓
61	*Parinari macrophylla*	Chrysobalanaceae	Gawasa	X	✓	X
62	*Parkia biglobosa*	Fabaceae	Ɗorowa	✓	X	X
63	*Parkiasonia acculeata*	Fabaceae	Sharannabi	✓	X	X
64	*Piliotigma recticulatum*	Leguminosaceae	Kalgo	✓	X	✓
65	*Prosopis Africana*	Leguminasae	Ƙirya	X	✓	X
66	*Raphia sudanica*	Arecaceae	Kwagwala	X	X	✓
67	*Raphionacme brownie*	Apocynaceae	Ɓauji	✓	X	X
68	*Sclerocarya birrea*	Anacardiaceae	Danya	✓	X	X
69	*Securidaca longepedunculata*	Polygalceae	Sanya	X	✓	✓
70	*Sesbania dalzielli*	Leguminosae	Alambo	✓	X	✓
71	*Sterculia setigera*	Sterculiaceae	Kukkuki	X	✓	X
72	*Strychnos spinosa*	Loganiaceae	Ƙoƙiya	X	✓	X
73	*Syzygium guineense*	Myrtaceae	Malmo	X	X	✓
74	*Tacca leontopetaloide*	Arecaceae	Yaryara	X	✓	✓
75	*Tamarindus indica*	Fabaceae	Tsamiya	✓	X	X
76	*Terminalia macroptera*	Combretaceae	Kandare	X	X	✓
77	*Trema orientalis*	Cannabaceae	Ajenana	X	✓	X
78	*Vitellaria paradox*	Sapotaceae	Kaɗanya	✓	X	X
79	*Vitex doniana*	Verbenaceae	Dinya	✓	✓	✓
80	*Voacanga thouarsii*	Loganiaceae	Ƙoƙiyar Biri	X	✓	X
81	*Ziziphus mauritiania*	Rhmnaceae	Magarya	✓	✓	✓
82	*Ziziphus micronata*	Rhamnaceae	Magaryar Kura	X	✓	X
83	*Ziziphus spinsa- Christi*	Rhamnaceae	Kurna	✓	X	✓

Source: Field survey (2019)

symbols (√) for species present and (X) for species Absent in each habitat. Family recorded with highest represented trees is *Fabaceae* (15 species) followed by *Moraceae* (8 species), *Rubiaceae* (5 species), *Combretaceae* and *Leguminosae* (4 species) each and *Amaranthaceae, Anacardiaceae, Arecaceae* and *Rhamnaceae* (3 species) each and *Burseraceae, Capparaceae, Dioscoreaceae, Euphorbiaceae, Loganiaceae, Meliaceae, Poaceae* and *Verbenaceae* (2 species) each. The least represented are families were recorded with (1 specie) in Table 1 respectively.

The results of Regeneration status potential of species Seedlings and Saplings indicated that Saplings had the higher density of 77.1% stems/ha, and Seedlings were recorded with least density of 34.7% stems/ha. The results also recorded the regeneration status potential of 83 identified species base on Good, Fair, Poor and Not regenerateable status as shown in table 2 below respectively.

Table 2: Regeneration Status of species seedlings and saplings of Baturiya Hadejia Wetland Game Reserves

S/no	Species	Seedlings		Saplings	
		RP	**Status**	**RP**	**Status**
1	*Acacia farnesiana*	0.000	Not regenerate	1.000	Good
2	*Acacia nilotica*	0.000	Not regenerate	0.000	Not regenerate
3	*Acacia polyacantha*	0.000	Not regenerate	3.000	Good
4	*Acacia Senegal*	0.333	Poor	0.778	Fair
5	*Acacia seyel*	0.000	Not regenerate	0.000	Not regenerate
6	*Acacia sieberana*	0.126	Poor	0.253	Poor
7	*Adansonia digitata*	1.750	Good	0.250	poor
8	*Adenium obsesum*	0.000	Not regenerate	0.000	Not regenerate
9	*Albizia chevalieri*	0.000	Not regenerate	0.000	Not regenerate
10	*Anogeissus lieocarpus*	0.750	Fair	0.000	Not regenerate
11	*Anona senegalensis*	0.214	Poor	0.143	Poor
12	*Aristolochis albida*	0.000	Not regenerate	2.000	Good
13	*Azadirachta indica*	0.000	Not regenerate	0.000	Not regenerate
14	*Balanite aegyptiaca*	0.070	Poor	0.351	Poor
15	*Balsamodendrum africanum*	0.000	Not regenerate	0.000	Not regenerate
16	*Bauhinia rufescens*	1.000	Good	4.000	Good
17	*Borassus aethiopum*	0.000	Not regenerate	0.294	Poor
18	*Boseia senegalensis*	0.000	Not regenerate	0.000	Not regenerate
19	*Boswellia odorata*	0.000	Not regenerate	0.000	Not regenerate
20	*Calotrospis procera*	0.000	Not regenerate	0.000	Not regenerate
21	*Canavalia ensiformis*	0.000	Not regenerate	0.000	Not regenerate
22	*Capparis tomentosa*	0.000	Not regenerate	0.000	Not regenerate
23	*Cassia singueana*	0.000	Not regenerate	0.722	Fair
24	*Celosia argentea*	3.000	Good	12.000	Good
25	*Celtis integrifolia*	0.000	Not regenerate	0.000	Not regenerate
26	*Clerodendrum capticatum*	0.000	Not regenerate	0.000	Not regenerate
27	*Cochlospermum tinctorium*	0.000	Not regenerate	0.000	Not regenerate
28	*Combretum glutinosum*	0.000	Not regenerate	0.353	Poor
29	*Combretum micranthum*	0.000	Not regenerate	0.000	Not regenerate
30	*Crosspteryx febrifusa*	0.000	Not regenerate	0.000	Not regenerate
31	*Cycatophyta cycad*	0.000	Not regenerate	0.000	Not regenerate
32	*Daniellia oliverii*	0.431	Fair	0.353	Poor
33	*Detarium microcarpus*	0.000	Not regenerate	1.600	Good
34	*Diospyros mespiliformis*	0.000	Not regenerate	0.219	Poor
35	*Eragrostis gangetica*	0.000	Not regenerate	0.000	Not regenerate
36	*Euphorbia kamerunica*	0.000	Not regenerate	0.000	Not regenerate
37	*Euphorbia poissoni*	0.000	Not regenerate	0.000	Not regenerate
38	*Faidhebia albida*	0.103	Poor	0.276	Poor
39	*Ficus abutilifolia*	0.000	Not regenerate	0.000	Not regenerate
40	*Ficus iteophylla*	0.000	Not regenerate	0.000	Not regenerate
41	*Ficus lutea*	0.000	Not regenerate	0.000	Not regenerate
42	*Ficus polita*	0.000	Not regenerate	0.000	Not regenerate
43	*Ficus ptatyphylla*	2.000	Good	0.000	Not regenerate
44	*Ficus sycomorus*	0.000	Not regenerate	2.000	Good
45	*Ficus thonningii*	0.000	Not regenerate	0.000	Not regenerate
46	*Ficus vallis- choude*	7.000	Good	0.000	Good
47	*Gardenia aqualla*	0.000	Not regenerate	0.000	Not regenerate

Table 2: Continue

48	***Guiera senegalensis***	**5.000**	**Good**	**0.000**	**Not regenerate**
49	*Hippocratea guineensis*	0.146	Poor	0.317	Poor
50	*Hyphaene thebaica*	0.265	Fair	0.554	Fair
51	*Isoberlinia doka*	0.000	Not regenerate	0.000	Not regenerate
52	*Khaya senegalensis*	0.000	Not regenerate	1.500	Good
53	*Lannea microcarpa*	1.200	Good	3.600	Good
54	*Mangifera indica*	4.000	Good	0.000	Not regenerate
55	*Mimosa pigra*	0.000	Not regenerate	0.000	Not regenerate
56	*Mitragyna inermis*	0.407	Fair	0.852	Fair
57	*Nauclea diderrichii*	0.000	Not regenerate	0.000	Not regenerate
58	*Nauclea latifolia*	0.000	Not regenerate	0.000	Not regenerate
59	*Olea europea*	1.500	Good	3.000	Good
60	*Oxytenanthera abyssinica*	0.000	Not regenerate	0.000	Not regenerate
61	*Parinari macrophylla*	0.000	Not regenerate	0.000	Not regenerate
62	*Parkia biglobosa*	1.000	Good	3.000	Good
63	*Parkiasonia acculeata*	0.000	Not regenerate	0.000	Not regenerate
64	*Piliotigma recticulatum*	0.157	Poor	0.431	Fair
65	*Prosopis Africana*	0.833	Fair	3.000	Good
66	*Raphia sudanica*	0.000	Not regenerate	0.000	Not regenerate
67	*Raphionacme brownie*	0.000	Not regenerate	0.000	Not regenerate
68	*Sclerocarya birrea*	0.000	Not regenerate	0.000	Not regenerate
69	*Securidaca longepedunculata*	0.000	Not regenerate	0.000	Not regenerate
70	*Sesbania dalzielli*	0.000	Not regenerate	0.000	Not regenerate
71	*Sterculia setigera*	0.000	Not regenerate	11.000	Good
72	*Strychnos spinosa*	0.000	Not regenerate	0.000	Not regenerate
73	*Syzygium guineense*	0.000	Not regenerate	0.000	Not regenerate
74	*Tacca leontopetaloide*	0.000	Not regenerate	0.000	Not regenerate
75	*Tamarindus indica*	2.667	Good	8.000	Good
76	*Terminalia macroptera*	0.000	Not regenerate	2.000	Good
77	*Trema orientalis*	0.000	Not regenerate	0.000	Not regenerate
78	*Vitellaria paradox*	0.000	Not regenerate	7.000	Good
79	*Vitex doniana*	0.000	Not regenerate	2.000	Good
80	*Voacanga thouarsii*	0.000	Not regenerate	0.000	Not regenerate
81	*Ziziphus mauritiania*	0.129	poor	0.314	Poor
82	*Ziziphus micronata*	0.000	Not regenarate	0.000	Not regenerate
83	*Ziziphus spinsa- Christi*	0.667	Fair	0.905	Fair
	Total	**34.750**		**77.065**	

Source: Field survey (2019)
RP = Regeneration Percentages

DISCUSSION

The checklist of tree species diversity of Baturiya Hadejia Wetland Game Reserve recorded a total of 83 species belonging to 63 genera which were distributed in 36 families. Of which 12 species of *Acacia Senegal, A. sieberana, Adansonia digitata, Anogeissus lieocarpus, Borassus aethiopum, Daniellia oliverii, Faidhebia albida, Ficus polita, Lannea microcarpa, Vitex doniana, Ziziphus mauritiana* and *Zizphus micronata* appeared in three (3) habitats, followed by 22 species appeared in two (2) habitats and 49 species in one (1) habitat as shown in table 1 with the symbols (√) for species present and (X) for species Absent in each habitat respectively. Family recorded with highest represented trees is *Fabaceae* with 18.1% (15 species) followed by *Moraceae* 9.6%, (8 species), *Rubiaceae* 6.0% (5 species), *Combretaceae* and *Leguminosae* with 4.8% (4 species) each and *Amaranthaceae, Anacardiaceae, Arecaceae* and *Rhamnaceae* with 3.6% (3 species) each and

Burseraceae, Capparaceae, Dioscoreaceae, Euphorbiaceae, Loganiaceae, Meliaceae, Poaceae and *Verbenaceae* with 2.4% (2 species) each. The least represented family is *Annonaceae, Apocynaceae, Aristolochiaceae, Caesalpinioideae, Cannabaceae, Celastraceae, Chrysobalanaceae, Cochlospermaceae, Cycadaceae, Ebenaceae Malvaceae, Mimosoideae, Myrtaceae, Oleaceae, Polygalceae, Sapotaceae, Sterculiaceae, Ulmaceae* and *Zygophyllaceae* with 1.2% (1 specie) each in plot frequency. This finding could be attributed as a result of anthropogenic activities or due to the fact that the family of *Fabaceae* is the most common family found in the tropics and can be found in all the habitats as cited by Hadiza (2015). This finding is similar to the finding of Sivakumar *et al*, 2014 in his research on the Checklist of tree species in selected forest fragments of the Western Ghats, Tamilnadu also far from what Muazu, (2010) found in Kuyambana Forest Reserve, Zamfara State, Nigeria. He reported the dominance family of *Caesalpinaceae*, *Mimosaceae* and *Combretaceae* comparatively. This could be due to the fact that some species are sparsely distributed.

Regeneration status potential of species seedlings and saplings were recorded, the finding indicated that Saplings had the highest regeneration status of 77.1% stems/ha in terms of the species density in the study area, out of this*Celosis argentea*has higher percentage of 12.0%, followed by *Sterculia setigera*11.0% and *Termarandus indica* 8.0%. *Adonsonia digitata* were recorded with least frequency of 0.07%. The finding also recorded the regeneration status of 83 identified species out of which 18 species had Good regeneration of (1- 12%), followd by 6 species with Fair renеneration of (0.4- 0.9%), and 11 species with Poor regeneration of (0.01- 0.39%) and 48 species Not regenerateable with (0.00%). Species of*Celosis argentea, Sterculia setigera* and *Termarandus indica* were found as dominant tree species of study area in sapling. Seedlings were recorded with least density of 34.7% stems/ha. *Ficus vallia-choude* had higher percentage of 7.0%, *Guiera senegalensis* 5.0% followed by *Celosia argentea* 3.0% and *Balanite aegytiaca* were recorded with least regenerate able of seedlings. The finding also recorded the regeneration status of 83 identified species out of which 11 species had Good regeneration of (1- 12%), followd by 6 species with Fair renеneration of (0.4- 0.9%), and 8 species with Poor regeneration of (0.01- 0.39%) and 58 species Not regenerate able with (0.00%). Species of *Ficus vallia-choude, Guiera senegalensis* and *Celosia argentea* were identified as dominant tree species. This finding is similar to the finding of Ashish, *et al.* (2013).This may be due to the effect of varying coppice of the harvested tree species in term of sapling and or Anthropogenic activities and livestock farming which lead to the attribute of seedlings disturbances as the seedlings were destroyed from trampling by people and livestock as well as other unfavorable effects such as inadequate soil nutrients in the reserve area. This finding is close to the finding of Abdulrashid *et al,* (2017) in the parklands of Gwarzo in Kano state who recorded Sapling with higher density of (78.72stems/ha) and seedlings recorded with the least density with 44.16 stems/ha, also similar to the research conducted at the parklands of Katsina state by Nuraddeen (2014) he reported a similar pattern of regeneration in which there was a higher density of mature stems and lower density of smaller stems (seedlings and saplings).

CONCLUSION

Checklist helped to determine the accurate information on the particular forest reserves area. Regeneration also is the ability for a cell tissue or organism to recover from damage. Quantitative assessment of the tree species diversity indices and regeneration status was carried out using systematic sampling techniques. Tree species and families were identified. The checklist of tree species diversity of the study area recorded a total of 83 species belonging to 63 genera which were distributed in 36 families. The finding of Regeneration status potential of species Seedlings and Saplings also were recorded Saplings with the higher density of 77.1% stems/ha, and Seedlings with least density of 34.7% stems/ha. However study suggests conservation strategies to protect woody species against anthropogenic pressures (for example, protection from or reducing the frequency and/or intensity of disturbance, especially wood cutting and bushfires), Rather than following a strict protectionist approach in the management of the game.

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