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PHYTODIVERSITY ANALYSIS AT JANEKAL VILLAGE MANVI TALUK RAICHUR DISTRICT KARNATAKA INDIA

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ABSTRACT

The study evaluates the floristic diversity of Janekal Manvi using key ecological diversity indices, namely the Shannon-Weiner Diversity Index, Simpson's Diversity Index and Species Diversity Index, to assess species richness, distribution, and evenness across plant communities. Through systematic quadrat sampling and analysis, the study quantifies the relative abundance of species, highlighting variations in diversity among different species groups. The Shannon-Weiner Index indicated a high diversity level (H' = 4.59), reflecting a balanced species distribution. Simpson's Index, with a value of 1.00, suggests evenness in species occurrence, while the Species Diversity Index score of 0.82 corroborates a stable, diverse ecosystem with minimal dominance by individual species. These findings provide a foundation for understanding the ecological dynamics of Janekal Mani and underscore the importance of conserving floristic diversity for ecosystem resilience. Further discussion offers insights into potential management strategies to sustain biodiversity in similar habitats.

KEYWORDS: *Floristic Diversity, Shannon-Weiner Diversity Index, Simpson's Diversity Index, Species Diversity Index, Species Richness, Janekal Manvi, Plant Communities, Ecosystem Resilience*

1. INTRODUCTION

All over the world biodiversity is in steady decline mainly due to habitat fragmentation and degradation (Fischer & Lindenmayer, 2007). The considerable variation in the vegetation of a particular habitat is seen because of remarkable climate change and anthropogenic impact. It is important to restore biodiversity rather than stop its decline. To know the plant species diversity and their status in among different forests of the world is an urgent need of the present time. Phyto diversity, or plant diversity, is a critical component of ecosystem stability and resilience, providing essential services such as nutrient cycling, carbon sequestration and habitat provision for various fauna (Magurran, 2004).

Phyto diversity assessments provide a baseline for understanding species composition, distribution, and ecological interactions, which are essential for the development of effective conservation policies (Whittaker, 1972).As described by Seetharam, 2003 sacred groves are natural museums of living giant trees, treasure houses of rare, endemic and endangered species, dispensaries of medicinal plants, recreation centers for urban life, gardens for botanists, gene banks of economic species, a paradise for nature lovers and laboratory for environmentalists. They are considered as repositories of local biodiversity. The sacred groves play an important role in ecosystem services by providing clean air, soil and water, conservation of flora and fauna, temperature control, and conservation of traditional knowledge. Being a biotype in a rural landscape, the sacred groves perform a critical role in the maintenance of the ecological and hydrological balance of an area and also help to compensate for carbon emissions of polluting industries and thereby offering economic benefits to the communities besides other ecological benefits (Chandrashekara, 2011).

To survey the plant species diversity and their status in the existing different forests of the world is an important requirement of the current time. The considerable variation taking place in the flora of a particular habitat is mainly due to climate change and anthropogenic effects. In Angiosperm the development of diverse reproductive structures has been considered as one of the major factors of species specificity. Studies on such periodically occurring phenomena in plants with respect to climate and seasonal changes are termed phenology (Lokho and Kumar, 2012). Many plant researchers in India have reported the distribution of plant species in different regions based on the natural habitats in the form of flora, among which some of them are namely Ramanjam and Kadamban (2001); Bairagee and Kalita (2003); Shrikanth *et al.*, (2006); Anuradha Chauhan *et al.,* (2007); Vinay Ranjan (2010); Shiragave, (2015); Patharaj (2016); Soosairaj *et al.,* (2016) and Acharya Balkrishna *et al.,*(2018).

Phyto diversity has important application in understanding the organization and function of ecosystems and, hence, is useful in conservation in systems that are threatened by anthropogenic factors. In this connection, it can be stated that the areas which contain greater forms of Diversity such as the Janekal Village in Manvi Taluk, Raichur District, Karnataka are crucial for the exigent ecological balance as perhaps they support great diverse types of plant forms. The study of plant ecology is important when describing the characteristic bio-diversity of Raichur District along the rest of the semi-arid regions of Karnataka. However these areas fall under high vulnerability to agriculture enhancement, deforestation, and change in land cover and hence it is essential to document the existing plant species for conservation (Kadavul and Parthasarathy, 1999). Thus, through field-based surveys and analytic tools, the research aims to add valuable information on the state of regional biodiversity and the need for conservation, accordingly identifying the priorities for the conservation of the semi-arid ecosystems of Karnataka. That is why the results obtained will contribute to the identification of the effects of environmental changes and human influence on plant communities, as well as contribute to the further elaboration of effective measures for the preservation of ecosystems.

2. METHODOLOGY

The study area is located atJanekal Village, Manvi Taluk, Raichur District, Karnataka, India,approximately at a latitude of 15.9295° N and a longitude of 76.7950° E, shown in Figure 1. The Neighboring Boundaries are North: Villages like Kalmala and Huligudda, South: Raichur city area and Manvi town, East: Hatti Village and Sindhanur Taluk and West: Lingsugur Taluk. The average elevation of Janekal Village in Manvi Taluk, Raichur District, Karnataka, India, is approximately 380 meters above sea level.

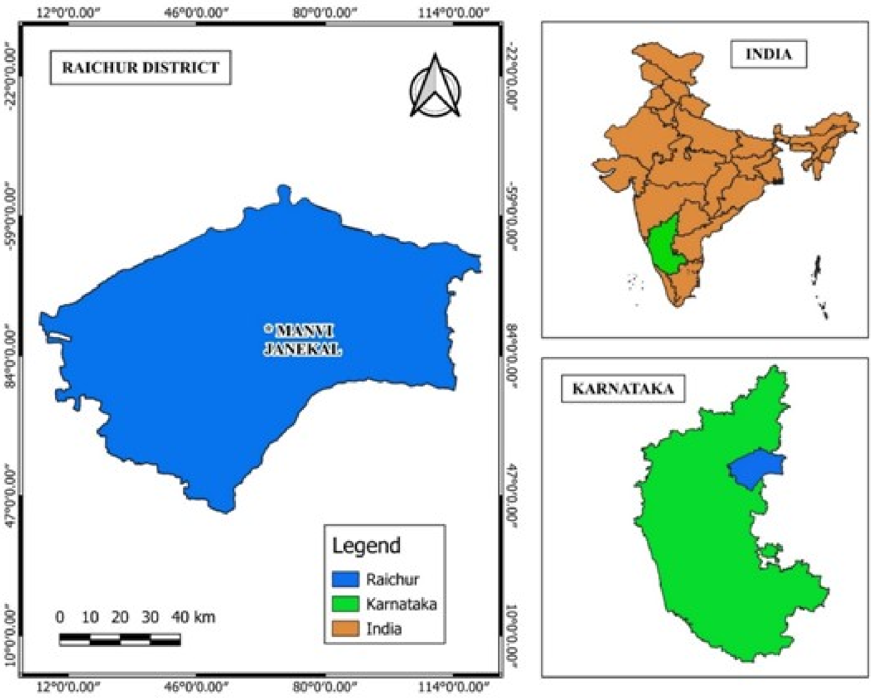

Figure 1: Site map for Janekal Village, Manvi Taluk, Raichur District, Karnataka, India

2.1 Data Collection

2.1.1 Sampling Sites: Janekal Mani's main area was divided into sampling plots to get a good cross-sectional view of the species of Janekal Manvi.

2.1.2 Quadrat Sampling: Haphazard quadrat sampling was used; the plots depended on the density of vegetation sizes with standard sizes of $1m^2$ or $10m^2$.

2.1.3 Species Identification: In each quadrat, all species were classified and the individuals of each species were also tallied.Plant species identification was conducted using the following references: Flora of Gulbarga District by Seetharam et al. (2000), Flora of the Presidency of Madras (Vol. I to III) by Gamble (1957), and Flora of North Eastern Karnataka by N.P. Singh (1988). Additionally, detailed studies from Flora of Karnataka (Vol. I, 1984, and Vol. II, 1996) by Saldanha et al. were utilized. Photographs and voucher specimens of the identified species have been preserved in the herbarium collection of the Department of Botany, Sunrise University, Alwar, Rajasthan (HSUR).

2.1.4 Abundance Data: Absolute density estimates for all species were obtained and summed over all the quadrats to determine relative density.

2.2 Calculation of Diversity Indices

2.2.1 Shannon-Weiner Diversity Index (H'):

Formula: $H' = -\sum pi \ln(pi)$,

Where 'pi' is the proportion of individuals of species 'i' to the total number of individuals.

Procedure

- The proportion *pi* for each species was calculated.
- Pi multiplied by ln (*pi*), and these values across all species are summed up.
- A negative of this sum gives the final H' value.

Greater diversity is indicated by a higher H' value and evenness in species distribution.

2.2.2 Simpson's Diversity Index (D):

Formula: D=1−∑*pi*2, where*pi* is the proportion of individuals of each species to the total population.

Procedure:

- The proportion *pi* for each species is squared.
- These squared proportions are summed up for all the species that are involved.
- This sum is subtracted from 1 to get the diversity index.

The closer to 1 the value is, there is greater mean chance that any two individuals belong to the same species; conversely, if the value is close to zero, there is a greater probability that any two in that population do not belong to the same species.

2.2.3 Species Diversity Index (SDI):

Formula: Depends on the type of the study but often includes localization (the total number of species) and representation (the number of individuals).

Procedure

- Estimate species total number or species abundance and evenness in the distribution of species.
- Use the SDI formula based on the dataset ((sometimes associated formulas may differ depending on the kind of ecological studies).
- Use the SDI formula based on the dataset (specific formulas may vary by ecological studies). For the present study, an SDI closer to 1 indicates greater diversity, while values less than 1 indicate lesser diversity.

2.3 Data Analysis and Interpretation

2.3.1 Comparison of Indices: While the Shannon-Weaver index gives information on richness or evenness, Simpson's championship is the measure of dominance and distribution while the SDI gives the entire view of diversity

2.3.2 Statistical Validation: The usefulness of the indices was analysed for statistical consistency, for example, by variance analysis.

3. RESULT AND DISCUSSION

The Survey reveals about 268 plant species belonging to 174 genera and 48 families. The plant species are categorized and dividing the plants into trees, herbs, and shrubs based on typical classifications. There are 22 trees, 60 herbs, and 24 shrubs, depicted in Figure 2. The trees are listed as *Phoenix sylvestris, Agave americana, Calotropis gigantean, Calotropis procera, Prosopis cineraria, Prosopis juliflora, Pongamia pinnata, Tamarindus indica, Vachellia eburnean, Vachellia farnesiana, Vachellia leucophloea, Vachellia nilotica, Delonix elata, Pithecellobium dulce, Azadirachta indica, Aegle marmelos, Ziziphus mauritiana, Ziziphus nummularia, Ziziphus xylopyrus, Ficus religiosa, Holoptelia integrifolia*and*Balanites roxburghii*. The herbs are *Barleria prionitis, Hygrophila auriculata, Indoneesiella echioides, Justicia diffusa, Justicia glauca, Trianthema portulacastrum, Alternanthera pungens, Alternanthera sessilis, Amaranthus spinosus, Amaranthus viridis, Celosia argentea, Chenopodium album, Digera muricata, Gomphrena celosioides, Trichuriella monsoniae, Cryptostegia grandiflora, Oxystelma esculentum, Pergularia daemia, Cyanotis axillaris, Evolvulus alsinoides, Ipomea aquatica, Ipomoea nil, Citrullus colocynthis, Coccinia grandis, Mukia madaraspatana, Cyperus difformis, Cyperus iria, Acalypha indica, Chrozophora plicata, Croton bonplandianus, Euphorbia hirta, Euphorbia tirucalli.*

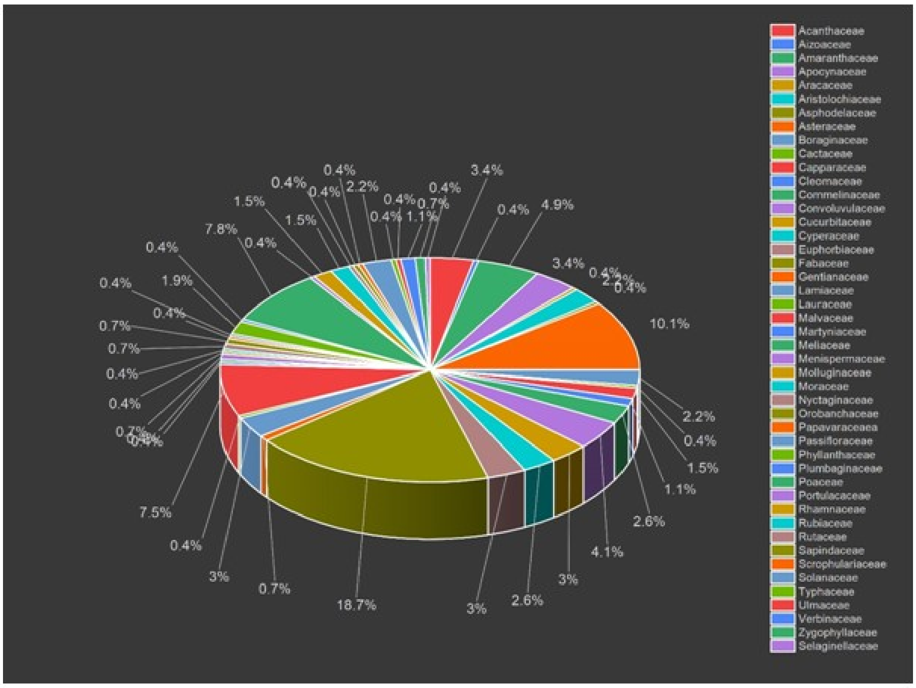

Figure 2: Family Wise Distribution of Janekal Village Manvi Taluk Raichur District Karnataka India

*Abrus precatorius, Alysicarpus moniliform, Clitoriaternatea, Crotalaria albida, Indigofera caerulea, Mimosa pudica, Sesbania bispinosa, Stylosantheshamata, Canscoradiffusa, Leonotis nepetiifolia, Leucas aspera, Vitex negundo, Abutilon indicum, Corchorus trilocularis, Hibiscus ovalifolius, Sida cordata, Waltheria indica, Martynia annua, Striga gesnerioides, Plumbago zeylanica, Cynodondactylon, Urochloapanicoides, Portulaca oleracea, Canthiumcoromandelicum, Physalis pruinose, Solanum nigrum, Typha angustifolia*and *Verbascum coromandelianum*, the shrubs are *Blepharis integrifolia, Dicliptera paniculata, Aerva javanica, Aerva lanata, Alternanthera philoxeroides, Capparis divaricate, Cleome chelidonii, Cleome viscosa, Convolvulus arvensis, Ipomoea pes-tigris, Indigofera cordifolia,* *Crotalaria nana, Tephrosia purpurea, Vachellia horrida, Mesosphaerum suaveolens, Ocimum sanctum, Cassytha filiformis, Sida acuta, Grewia damine, Cocculus hirsutus, Physalis minima, Datura stramonium, Stachyterpeta jamaicensis* and *Priva cordifolia*.

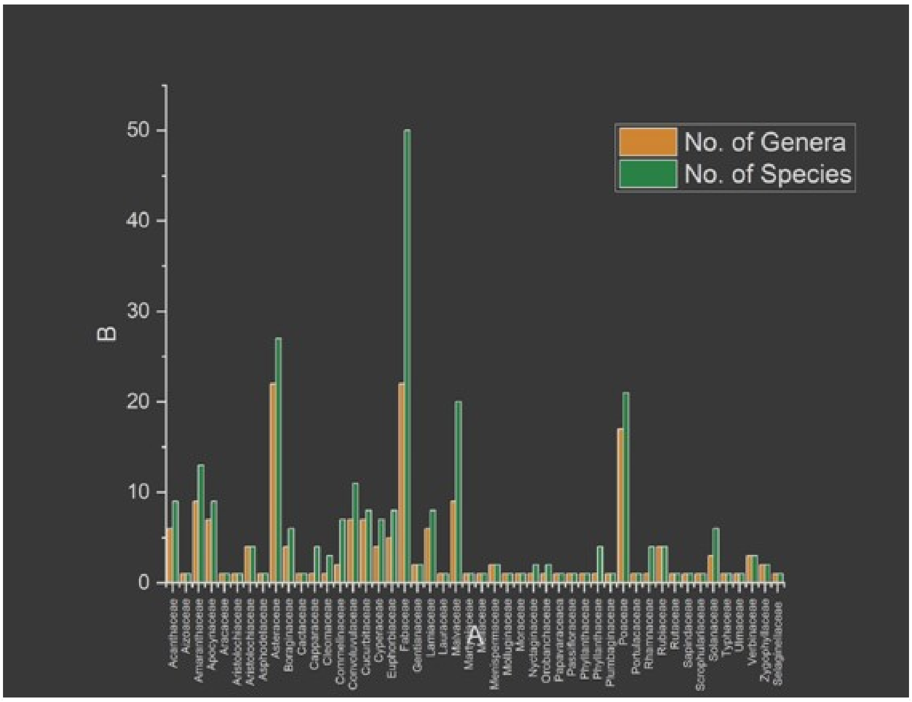

Figure 3: Family Wise Distribution of Janekal Village Manvi Taluk Raichur District Karnataka India

As shown in Figure 3, the number of plants in each family are Acanthaceae (9), Aizoaceae (1), Amaranthaceae (13), Apocynaceae (9), Aracaceae (1), Aristolochiaceae (2), Aristolochiaceae (4), Asphodelaceae (1), Asteraceae (27), Boraginaceae (6), Cactaceae (1), Capparaceae (4), Cleomaceae (3), Commelinaceae (7), Convoluvulaceae (11), Cucurbitaceae (8), Cyperaceae (7), Euphorbiaceae (8), Fabaceae (50), Gentianaceae (2), Lamiaceae (8), Lauraceae (1), Malvaceae (20), Martyniaceae (1), Meliaceae (1), Menispermaceae (2), Molluginaceae (1), Moraceae (1), Nyctaginaceae(2), Orobanchaceae (2), Papavaraceaea (1), Passifloraceae (1), Phyllanthaceae (1), Phyllanthaceae (4), Plumbaginaceae (1), Poaceae (21), Portulacaceae(1), Rhamnaceae (4), Rubiaceae (4), Rutaceae (1), Sapindaceae(1), Scrophulariaceae (1), Solanaceae (6), Typhaceae (1), Ulmaceae (1), Verbinaceae (3), Zygophyllaceae (2) and Selaginellaceae (1).

The number of genera in each families are Acanthaceae (6), Aizoaceae (1), Amaranthaceae (9), Apocynaceae (7), Aracaceae (1), Aristolochiaceae (1), Aristolochiaceae (4), Asphodelaceae (1), Asteraceae (22), Boraginaceae (4), Cactaceae (1), Capparaceae (1), Cleomaceae (1), Commelinaceae (2), Convoluvulaceae (7), Cucurbitaceae (7), Cyperaceae (4), Euphorbiaceae (5), Fabaceae (22), Gentianaceae (2), Lamiaceae (6), Lauraceae (1), Malvaceae (9), Martyniaceae (1), Meliaceae (1), Menispermaceae(2), Molluginaceae (1), Moraceae (1), Nyctaginaceae (1), Orobanchaceae (1), Papavaraceaea (1), Passifloraceae (1), Phyllanthaceae (1), Phyllanthaceae (1), Plumbaginaceae (1), Poaceae (17), Portulacaceae (1), Rhamnaceae (1), Rubiaceae (4), Rutaceae (1), Sapindaceae(1), Scrophulariaceae(1), Solanaceae (3), Typhaceae (1), Ulmaceae (1), Verbinaceae (3), Zygophyllaceae (2) and Selaginellaceae (1).

Density reflects species' local dominance or prevalence, offering insight into habitat suitability, competitive ability, and potential ecological roles. High-density species, especially common across different areas (e.g., *Blepharis maderaspatensis* and *Gomphrena celosioides*), may serve as foundational species, often shaping community structure by providing food, habitat, or contributing to nutrient cycling.The Common and High-Density Species*Blepharis maderaspatensis* and *Gomphrena celosioides* show the highest density values (3.50). These species may demonstrate strong ecological adaptability to the area's conditions, such as soil type, moisture levels, or sunlight, which makes them prevalent.*Dactyolectnium aegypticum, Barleria prionitis*, and *Parthenium hysterophorus* species have high density values (3.30–3.40) suggesting that these species are better suited to the availability of the habitat. For instance, the *Parthenium hysterophorus* species was determined to be very invasive and could change the pattern of biodiversity since it displaces native species (Snoeijs- Leijonamalm*,* 2017). This is due to the higher density of the species implying adaptability with being a possible threat to biodiversity. The density, abundance and frequency studied by quadrate method is illustrated in Table 1.

Some of the identified Invasive Species include; the *Parthenium hysterophorus*. Being a successful invasive species, it quickly out-competes and suppresses other vegetation through allelopathy, which is, the release of certain chemicals that reduce germination, growth, and reproduction of other plants/ so assumes a seed bank role and also may modify the soil structure and fertility (Gnanavel, 2013).

Table 1: Calculating the Density, Abundance, and Frequency by Quadrate Method- Janekal-Manvi

S. No	Plant Species	Family	Density = A/B	Abundance = A/C	Frequency (%) = C/B *100
1	*Barleria prionitis*L.(Carl Linnaeus)	Acanthaceae	3.30	4.71	70
2	*Blepharis integrifolia*B.-E.van Wyk	Acanthaceae	2.40	4.00	60
3	*Blepharis maderaspatensis* (L) B.Heyne ex Roth	Acanthaceae	3.50	5.83	60
4	*Dicliptera paniculata*(Forssk.) I. Darbysh.	Acanthaceae	2.70	3.38	80
5	*Hygrophila auriculata*(Schumach.) Heine	Acanthaceae	1.90	2.71	70
6	*Indoneesiella echioides* (L).Screem	Acanthaceae	2.20	4.40	50
7	*Justicia diffusa*Willd	Acanthaceae	3.00	5.00	60
8	*Justicia glauca*Rottler ex Nees	Acanthaceae	2.60	3.25	80
9	*Lepidogathis cristata*Wight	Acanthaceae	2.10	3.50	60
10	*Trianthema portulacastrum*L.(Carl Linnaeus)	Aizoaceae	2.20	2.44	90
11	*Achyranthes aspera*L.(Carl Linnaeus)	Amaranthaceae	2.50	3.57	70
12	*Alternanthera pungens*Kunth	Amaranthaceae	2.30	3.83	60
13	*Alternanthera sessilis*(L.) R.Br.exDC.	Amaranthaceae	2.20	2.44	90
14	*Alternthera philoxeroides (*Mart) Griseb	Amaranthaceae	2.10	4.20	50
15	*Aerva javanica*(Burm.f.) Schult	Amaranthaceae	2.00	2.86	70
16	*Aerva lanata*(L.) Juss. Ex Schult.	Amaranthaceae	2.70	4.50	60
17	*Amaranthus spinosus* L.	Amaranthaceae	2.40	3.43	70
18	*Amaranthus viridis*L.	Amaranthaceae	2.90	5.80	50
19	*Celosia argentea* L.	Amaranthaceae	3.00	5.00	60
20	*Chenopodium album*L.	Amaranthaceae	2.50	3.57	70
21	*Digera muricata* (L.) Mart.	Amaranthaceae	3.20	6.40	50
22	*Gomphrena celosioides* Mart.	Amaranthaceae	3.50	4.38	80
23	*Trichuriella monsoniae* (Hook.f.) Hook. f.	Amaranthaceae	2.20	4.40	50
24	*Calotropis gigantean*(L.) Dryand	Apocynaceae	2.10	3.00	70
25	*Calotropis procera* (Airton)W.Aiton	Apocynaceae	2.40	4.00	60
26	*Carissa spinarum*L.	Apocynaceae	2.20	2.75	80
27	*Cryptolepis buchanani*(Roem. & Schult.) Arn.	Apocynaceae	1.90	3.17	60

Table 1: Contd.,

28	*Cryptostegia grandiflora* (RBr.)R.Br.	Apocynaceae	1.80	2.57	70
29	*Hemidesmous indicus* (L.) Schult.	Apocynaceae	2.10	4.20	50
30	*Oxystelma esculentum* (L.) Wight & Arn	Apocynaceae	2.40	3.00	80
31	*Pergularia daemia*(Forsk.) Royle	Apocynaceae	2.90	5.80	50
32	*Stephanotis volubilis* (L.)Juss. Ex Vahl	Apocynaceae	2.20	3.67	60
33	*Phoenix sylvestris* (L.) Roxb.	Aracaceae	2.00	4.00	50
34	*Aristolochia indica* L.	Aristolochiaceae	2.60	4.33	60
35	*Aristolochia bracteolata* Lam.	Aristolochiaceae	2.40	4.80	50
36	*Agave Americana* L.	Asperagaceae	2.00	2.86	70
37	*Asparagus racemosus* Willd.	Asperagaceae	2.30	3.83	60
38	*Drimia indica*(Roxb.) Jessop	Asperagaceae	2.80	5.60	50
39	*Ledebouria revolute* (L.) Jessop	Asperagaceae	2.70	4.50	60
40	*Aloe vera* (L.) Burm. f.	Asphodelaceae	2.20	3.14	70
41	*Acanthospermum hispidum* (L.) Kuntze	Asteraceae	2.50	4.17	60
42	*Ageratum conyzoides*L.	Asteraceae	2.40	3.00	80
43	*Blumea axillaris*DC.	Asteraceae	2.50	5.00	50
44	*Blumea eriantha* DC.	Asteraceae	2.30	2.88	80
45	*Blumea malcolmii* (D.C.) Merrill	Asteraceae	2.20	3.67	60
46	*Blumea oblique* (L.) DC.	Asteraceae	2.70	4.50	60
47	*Caesulia axillaris*Roxb.	Asteraceae	2.50	3.57	70
48	*Chromolaena odorata*(L.)vR.M.King & H.Rob	Asteraceae	2.10	3.50	60
49	*Eclipta prostrate* (L.) L.	Asteraceae	2.90	4.14	70
50	*Echinops echinatus* L.	Asteraceae	2.10	3.50	60
51	*Epaltes divaricate* (L.) R.Br	Asteraceae	2.20	4.40	50
52	*Flaveria trinerva*(Spreng.) C.Mart.	Asteraceae	2.40	4.00	60
53	*Grangea maderaspatana*(L.) Poir.	Asteraceae	2.00	4.00	50
54	*Pseudognaphalium luteoalbum*(L.) Hilliard & B.L.Burtt	Asteraceae	1.90	2.71	70
55	*Lagascea mollis* (D.Don) R.Br.	Asteraceae	2.20	3.67	60
56	*Launaea procumbens*(L.) Hook. f.	Asteraceae	2.60	3.71	70
57	*Launea intybacea*(L.) Kuntze	Asteraceae	2.20	3.67	60
58	*Parthenium hysterophorus* L.	Asteraceae	3.30	4.71	70
59	*Pulicaria wightiana*(DC.) Hook. f.	Asteraceae	1.90	2.38	80
60	*Soncus aspera*(L.) Hill	Asteraceae	1.80	3.00	60
61	*Sphaeranthus indicus*L.	Asteraceae	1.70	2.43	70
62	*Tricholepis amplexicaule* (L).C.B.Clarke	Asteraceae	1.90	2.38	80
63	*Tricholepis radicans*(L.) Nees	Asteraceae	1.50	2.50	60
64	*Tridex procumbens*L.	Asteraceae	3.00	4.29	70
65	*Vernonia cinerea* (L.) Less.	Asteraceae	2.70	4.50	60
66	*Vicoa indica* (L.) Less.	Asteraceae	2.40	4.00	60
67	*Xanthium indicum (*L) Raynal	Asteraceae	2.20	4.40	50
68	*Coldenia procumbens*L.	Boraginaceae	1.90	3.17	60
69	*Cordia myxa*L.	Boraginaceae	1.50	2.14	70
70	*Heliotropium europaeum*L.	Boraginaceae	2.20	3.14	70
71	*Heliotropium marifolium*Vahl	Boraginaceae	2.30	4.60	50
72	*Trichodesma indicum*(L.) R.Br.	Boraginaceae	2.90	4.83	60
73	*Trichodesma zeylanicum*(L.) R.Br.	Boraginaceae	2.80	5.60	50
74	*Opuntia stricta*(Haw.) Haw.	Cactaceae	3.10	5.17	60
75	*Capparis divaricataI* L.	Cparaceae	2.40	4.80	50
76	*Capparis sepiara*L.	Capparaceae	2.20	3.67	60
77	*Capparis zyelanica*L.	Capparaceae	2.50	5.00	50
78	*Cadaba fruticosav* Forssk.	Capparaceae	2.80	4.67	60
79	*Cleome chelidonii*L.	Cleomaceae	2.20	4.40	50
80	*Cleome gynandra*L.	Cleomaceae	2.90	4.83	60

Table 1: Contd.,

81	*Cleome viscosa*L.	Cleomaceae	2.70	5.40	50
82	*Commelina benghalensis* L.	Commelinaceae	2.20	3.67	60
83	*Commelina clavata* Roxb.	Commelinaceae	2.10	4.20	50
84	*Commelina longifolia* L.	Commelinaceae	2.40	4.00	60
85	*Commelina subulata* L.	Commelinaceae	2.50	5.00	50
86	*Cyanotis arachnoidea*(Burm.f.) D.Don	Commelinaceae	2.70	4.50	60
87	*Cyanotis axillaris* (L.) D.Don	Commelinaceae	2.40	4.80	50
88	*Cyanotis fasciculate* (Roxb.) D.Don	Commelinaceae	2.20	3.67	60
89	*Convolulus arvensis*L.	Convoluvulaceae	2.50	3.57	70
90	*Cuscuta chinensis*Lam	Convoluvulaceae	2.20	4.40	50
91	*Cuscuta reflexa* Roxb.	Convoluvulaceae	2.80	4.67	60
92	*Evolvulus alsinoides*(L.) L.	Convoluvulaceae	3.20	5.33	60
93	*Ipomea aquatica* Forssk.	Convoluvulaceae	2.60	5.20	50
94	*Ipomoea nil*(L.) Roth	Convoluvulaceae	2.30	4.60	50
95	*Ipomoea pes-tigris*(L.) A.Henry	Convoluvulaceae	2.20	3.67	60
96	*Ipomoea quamoclit* L.	Convoluvulaceae	2.00	4.00	50
97	*Merrenia umbellate*(L.) Kuntze	Convoluvulaceae	2.10	3.50	60
98	*Rivea hypocrateriformis* (L.) choisy	Convoluvulaceae	2.80	5.60	50
99	*Xenostegia tridenta* (Jacq.) Hallier f.	Convoluvulaceae	2.90	4.83	60
100	*Citrullus colochynthis*(L.) Schrad.	Cucurbitaceae	2.40	4.80	50
101	*Ctenolepis garcini* (Burm.f.) Benth.	Cucurbitaceae	2.20	3.67	60
102	*Coccinia grandis*(L.) Voigt	Cucurbitaceae	2.90	4.83	60
103	*Cucumis melo* L.	Cucurbitaceae	2.20	3.67	60
104	*Cucumis prophatum* L.	Cucurbitaceae	2.10	4.20	50
105	*Diplocyclos palmatus*(L.) C.Jeffrey	Cucurbitaceae	2.70	5.40	50
106	*Momordica cymbalaria*(L) Hook. f.	Cucurbitaceae	3.10	5.17	60
107	*Mukia madaraspatana*(L) M.R.Almeida	Cucurbitaceae	3.30	4.71	70
108	*Cyperus difformis* L.	Cyperaceae	2.00	3.33	60
109	*Cyperus haspan* L.	Cyperaceae	1.70	3.40	50
110	*Cyperus iria* L.	Cyperaceae	2.70	5.40	50
111	*Cyperus pulchellus*(Rottb.) Hassk.	Cyperaceae	1.90	3.17	60
112	*Fimbristylis complanata* (L.) Link	Cyperaceae	2.30	3.83	60
113	*Fuirena capitata*(L.) H.Hara	Cyperaceae	2.20	4.40	50
114	*Kyllinga brevifolia* (Rottb.) Rottb.	Cyperaceae	2.90	5.80	50
115	*Acalypha indica*L.	Euphorbiaceae	2.40	4.80	50
116	*Chrozophora plicata*(L.) A.Juss.	Euphorbiaceae	2.20	3.67	60
117	*Chrozophora rottlerin*(Schum.) Mull.Arg.	Euphorbiaceae	2.10	3.50	60
118	*Croton bonplandianus* Baill.	Euphorbiaceae	2.70	4.50	60
119	*Euphorbia heyneana*(Wight & Arn.) Dandy	Euphorbiaceae	2.20	4.40	50
120	*Euphorbia hirta*L.	Euphorbiaceae	2.30	4.60	50
121	*Euphorbia tirucalli*L.	Euphorbiaceae	2.10	3.50	60
122	*Jatropha gossipifolia*(L.) Pers.	Euphorbiaceae	2.00	3.33	60
123	*Abrus precatorius* L.	Fabaceae	2.80	5.60	50
124	*Albizia amara*(Roxb.) Boivin	Fabaceae	2.90	5.80	50
125	*Albizia procera* (Roxb.) Boivin	Fabaceae	1.90	3.17	60
126	*Alysicarphus moniliform*(L.) DC.	Fabaceae	2.70	4.50	60
127	*Alysicarpus hamosus*(L.) DC.	Fabaceae	2.40	4.00	60
128	*Alysicarpus vaginalis*(L.) DC.	Fabaceae	2.50	4.17	60
129	*Chamaecrista absus*(L.) H.S.Irwin & Barneby	Fabaceae	2.30	4.60	50
130	*Chamaecrista pumila* (L.) Greene	Fabaceae	2.80	4.67	60
131	*Clitoria ternetea* L.	Fabaceae	2.60	3.71	70
132	*Crotalaria albida* (L.) D.C.	Fabaceae	2.20	3.14	70
133	*Crotalaria medicaginea* (L.) Benth.	Fabaceae	2.40	4.00	60
134	*Crotalaria nana*(L.) Pers	Fabaceae	2.10	3.50	60

Table 1: Contd.,

135	*Crotalaria orixensis*(L.) Benth.	Fabaceae	2.30	3.83	60
136	*Crotalaria pallida* Aiton	Fabaceae	2.00	2.86	70
137	*Crotalaria pusilla* (Burm.f) Druce	Fabaceae	2.40	3.43	70
138	*Crotalaria retusa*L.	Fabaceae	2.10	3.50	60
139	*Grona heterophylla*(Burm. f) R.Brown	Fabaceae	2.40	3.43	70
140	*Grona triflorum*(Burm. f) R.Brown	Fabaceae	2.50	5.00	50
141	*Dichrostachys cineria*(L.) Wight & Arn.	Fabaceae	2.70	3.86	70
142	*Indigofera caerulea*Roxb.	Fabaceae	2.20	3.67	60
143	*Indigofera cordifolia*(L.) Willd	Fabaceae	2.30	3.83	60
144	*Indigofera coultea*(L.) Willd	Fabaceae	2.40	4.80	50
145	*Indigofera glandulosa*Benth.	Fabaceae	2.50	4.17	60
146	*Indigofera linnaei* Dandy	Fabaceae	2.70	4.50	60
147	*Indigofera trifoliate* L.	Fabaceae	2.50	4.17	60
148	*Mimosa hamate* (L.) Willd	Fabaceae	2.30	3.83	60
149	*Mimosa pudica*L.	Fabaceae	2.70	4.50	60
150	*Pongamia pinnata*(L.) Pierre	Fabaceae	2.00	4.00	50
151	*Prosopis cineraria*(L.) Deruce	Fabaceae	2.60	3.71	70
152	*Prosopis juliflora*(Sw.) DC.	Fabaceae	3.00	4.29	70
153	*Rhynchosia viscosa*(L.)DC.	Fabaceae	2.40	4.00	60
154	*Senna alexandrina*(Mill.) H.S.Irwin & Barneby	Fabaceae	2.00	3.33	60
155	*Senna auriculata*(L)H.S.Irwn & Barneby	Fabaceae	2.90	4.83	60
156	*Senna occidentalis*(L.) Link	Fabaceae	2.20	3.14	70
157	*Senna uniflora*(L.) H.S.Irwin & Barneby	Fabaceae	3.30	5.50	60
158	*Senegalia chundra*(Roxb.) Maslin	Fabaceae	2.00	3.33	60
159	*Sesbania bispinosa*(Jacq.) W.Wight	Fabaceae	1.90	2.71	70
160	*Stylosanthes fruticose* (L.) J.H.West	Fabaceae	2.10	3.00	70
161	*Stylosanthes hamata (*L.) Taub.	Fabaceae	2.20	3.67	60
162	*Tamarindus indica*L.	Fabaceae	1.80	3.60	50
163	*Tephrosia pumila*(L.) Pers.	Fabaceae	2.30	3.83	60
164	*Tephrosia purpurea*(L.) Pers.	Fabaceae	2.50	3.57	70
165	*Tephrosia villosa*(L.) Pers.	Fabaceae	2.80	4.67	60
166	*Vachellia eburnean* (J.F.Gmel.) Seigler & Ebinger	Fabaceae	2.90	4.83	60
167	*Vachellia farnesiana*(L.) Willd.	Fabaceae	2.20	3.67	60
168	*Vachellia horrida*(L.) E.L. L. & D.L. (Hillis)	Fabaceae	2.10	3.00	70
169	*Vachellia leucophloea* (Roxb.) J.F. Macbr.	Fabaceae	2.40	3.43	70
170	*Vachellia nilotica*(L.)vP.J.H.Hurter & Mabb.	Fabaceae	2.50	4.17	60
171	*Delonix elata*(L.) J.L.Hope	Fabaceae	2.10	3.50	60
172	*Pithecellobium dulce*(Roxb.) Benth.	Fabaceae	2.20	3.67	60
173	*Canscora diffusa*(L.) M. Roem.	Gentianaceae	2.10	3.00	70
174	*Enicostemma axillare*(Lam). Oerst.	Gentianaceae	2.20	3.67	60
175	*Anisomeles malabarica*(L.) R.Br.	Lamiaceae	1.30	2.17	60
176	*Mesosphaerum suaveolens*(L.) Kuntze	Lamiaceae	2.50	3.57	70
177	*Leonotis nepetiifolia*(L.) R.Br.	Lamiaceae	2.80	4.67	60
178	*Leucas aspera*(Willd.) Link	Lamiaceae	2.70	4.50	60
179	*Leucas martinicensis*(L.) R.Br.	Lamiaceae	2.30	3.29	70
180	*Ocimum filamentosum*(Forssk.) Kuntze	Lamiaceae	2.90	4.83	60
181	*Ocimum sanctum*L.	Lamiaceae	2.90	4.83	60
182	*Vitex negundo*L.	Lamiaceae	2.30	3.29	70
183	*Cassytha filiformis* L.	Lauraceae	2.20	3.67	60
184	*Abelmochus ficulneus*(L.) Wight & Arn	Malvaceae	1.90	3.17	60
185	*Abutilon hirtum(*L.) Kuntze	Malvaceae	2.90	4.14	70
186	*Abutilon indicum(*L.) Sweet	Malvaceae	3.00	5.00	60
187	*Corchorus aestuans*L.	Malvaceae	2.20	3.67	60

Table 1: Contd.,

188	*Corchorus olitorius* L.	Malvaceae	2.50	4.17	60
189	*Corchorus trilocularis*L.	Malvaceae	2.60	3.71	70
190	*Grewia damine*(Roxb.) F.Muell.	Malvaceae	2.70	3.86	70
191	*Grewia tenax*(Forssk.) Fioro	Malvaceae	2.20	3.67	60
192	*Grewia villosa*(Roxb.) DC.	Malvaceae	2.40	4.80	50
193	*Hibiscus lobatus* L.	Malvaceae	2.00	3.33	60
194	*Hibiscus ovalifolius (*L.f.) Sweet	Malvaceae	2.50	3.57	70
195	*Hibiscus vitifolius*L.	Malvaceae	2.90	4.83	60
196	*Pavonia odorata*(L.) R.Br.	Malvaceae	3.10	6.20	50
197	*Pavonia zeylanica (*L.)R.Br.	Malvaceae	3.00	5.00	60
198	*Sida acuta*Burm.f.	Malvaceae	3.20	4.57	70
199	*Sida cordata*(L.) Lam.	Malvaceae	3.30	5.50	60
200	*Sida rhombifolia*L.	Malvaceae	3.10	5.17	60
201	*Sida spinosa*L.	Malvaceae	2.70	4.50	60
202	*Trimufetta rhomboidea (*L.)A.Gray	Malvaceae	2.90	4.14	70
203	*Waltheria indica*L.	Malvaceae	2.30	3.83	60
204	*Martynia annua*L.	Martyniaceae	2.90	4.83	60
205	*Azadirachta indica*A.Juss.	Meliaceae	2.70	4.50	60
206	*Tinospora cordifolia*(Willd.) Miers	Menispermaceae	2.50	3.57	70
207	*Cocculus hirsutus*(L.) Diels	Menispermaceae	2.20	3.67	60
208	*Glinus oppositifolius*(L.) DC.	Molluginaceae	2.10	3.50	60
209	*Ficus religiosa* L.	Moraceae	2.70	4.50	60
210	*Boehravia diffusa (*L.) A.DC.	Nyctaginaceae	3.00	4.29	70
211	*Boerhavia erecta*L.	Nyctaginaceae	3.10	5.17	60
212	*Striga angustifolia* (Benth.) Benth. & Hook.f.	Orobanchaceae	2.30	3.83	60
213	*Striga gesnerioides*(Willd.) Vatke	Orobanchaceae	2.20	3.14	70
214	*Argemone Mexicana* L.	Papavaraceaea	2.80	4.67	60
215	*Passiflora foetida* L.	Passifloraceae	2.50	3.57	70
216	*Sesamum indicum*L.	Pedaliaceae	2.20	3.67	60
217	*Phyllanthus amarus*Schumach. & Thonn.	Phyllanthaceae	3.00	5.00	60
218	*Phyllanthus maderapatensis*(L.) Muell.Arg	Phyllanthaceae	2.70	3.86	70
219	*Phyllanthus reticulate (*L.) A.Juss.	Phyllanthaceae	2.20	3.14	70
220	*Phyllanthus virgatus(*L.) (L.) Dandy	Phyllanthaceae	2.50	4.17	60
221	*Plumbago zeylanica*L.	Plumbaginaceae	2.30	3.29	70
222	*Alloteropsis cimicina* (L.) Hitchc.	Poaceae	2.70	3.86	70
223	*Aristida adscensionsis* L.	Poaceae	2.60	4.33	60
224	*Aristida hystrix* (L.) Willd.	Poaceae	2.70	4.50	60
225	*Chloris virgata* (L.) Sw.	Poaceae	2.90	5.80	50
226	*Cynodon dactylon*(L.) Pers.	Poaceae	3.30	4.71	70
227	*Digitaria ciliaris*(Rez.) Koeler	Poaceae	2.00	3.33	60
228	*Dactyolectnium aegypticum*(L.) Willd.	Poaceae	3.40	5.67	60
229	*Dichanthium annulatum*(Forssk.) Stapf	Poaceae	2.80	4.00	70
230	*Dichanthium pertusum* (L.) Staph	Poaceae	2.30	3.83	60
231	*Dinebra chinensis*(L.) P.Beauv.	Poaceae	2.50	4.17	60
232	*Dinebra retroflexa*(L.) C.E.Hubb.	Poaceae	2.20	3.14	70
233	*Eragrostis atrovirens*Nees	Poaceae	2.90	4.83	60
234	*Eragrostis viscosa*(L.) Nees	Poaceae	2.70	4.50	60
235	*Heteropogon contortus* (L.) Beauv.	Poaceae	3.00	4.29	70
236	*Melanocenchris jacquemontii (*Benth.) Linde	Poaceae	3.30	5.50	60
237	*Moorochloa eruciformis*(Roxb.) C.E.Hubb.	Poaceae	2.40	4.80	50
238	*Oplismenus burmanii* (Retz.) P.Beauv.	Poaceae	1.90	3.17	60
239	*Paspalum vaginatum* Sw.	Poaceae	2.20	3.67	60
240	*Setaria pumila*(Poir.) Roem. & Schult.	Poaceae	2.10	3.00	70
241	*Trachys muricata*(L.) Willd.	Poaceae	2.80	4.67	60

Table 1: Contd.,

242	*Urochloa panicoides*(L.) R.Br.	Poaceae	2.70	4.50	60
243	*Portulaca oleracea*L.	Portulacaceae	2.00	4.00	50
244	*Ziziphus mauritiana*Lam.	Rhamnaceae	2.70	4.50	60
245	*Ziziphus nummularia*(Burm.f) Wight & Arn	Rhamnaceae	2.80	4.00	70
246	*Ziziphus xylopyrus*(Willd,) Deb	Rhamnaceae	2.40	4.00	60
247	*Zizipus oenophile* (DC.) Wight & Arn.	Rhamnaceae	2.90	4.83	60
248	*Canthium coromandelicum*(L.) Thw.	Rubiaceae	2.40	3.43	70
249	*Catunaregam spinosa*(Thunb.) Tirveng.	Rubiaceae	2.70	4.50	60
250	*Oldenlandia corymbose*(L.) L.	Rubiaceae	3.00	5.00	60
251	*Spermacoce articularis* L.	Rubiaceae	2.40	3.43	70
252	*Aegle marmelos*(L.) Correa	Rutaceae	2.20	3.67	60
253	*Cardiospermum halicacabum*L.	Sapindaceae	2.90	4.83	60
254	*Verbascum coromandelianum*(L.) Schrad.	Scrophulariaceae	1.80	2.57	70
255	*Datura stramonium*L.	Solanaceae	2.20	3.67	60
256	*Physalis minima*L.	Solanaceae	2.40	4.00	60
257	*Physalis pruinosa*L.	Solanaceae	2.50	3.57	70
258	*Solanum nigrum*L.	Solanaceae	2.10	3.50	60
259	*Solanum trilobatum*L.	Solanaceae	2.40	4.00	60
260	*Datura Innoxia*Mill.	Solanaceae	2.50	3.13	80
261	*Typha angustifolia* L.	Typhaceae	2.90	4.83	60
262	*Holoptelia integrifolia (*L.) Thunb	Ulmaceae	2.90	4.83	60
263	*Lantana camara* L.	Verbinaceae	2.70	3.86	70
264	*Priva cordifolia*(L.) Merr.	Verbinaceae	2.20	3.67	60
265	*Stachyterpeta jamaicensis* (L.) Benth.	Verbinaceae	2.30	3.29	70
266	*Balanites roxburghii*(L.) DC.	Zygophyllaceae	2.70	5.40	50
267	*Tribulus terrestris* L.	Zygophyllaceae	3.00	5.00	60
268	*Selaginella bryopteris*(Baker) Bak.	Selaginellaceae	2.70	4.50	60

Density control and especially monitoring are crucial if the area is to retain part of its ecological uniqueness. Another site-species to be high-density is *Prosopis juliflora* which is invasive and believed to affect soil and water accessibility and even lower the proportions of native plants (Pasiecznik*et al*., 2001). It is best observed and examined because it disrupts ecosystem dynamics. *Cynodondactylon* and *Senna uniflora* are found across these ecosystems and are widespread, usually helping to control erosion and supporting herbivores (Richardson and Pysek, 2006; 2012). Their moderate to high densities suggest they play beneficial roles in soil retention and habitat stability, particularly in degraded or erosion-prone areas.*Momordica cymbalaria*, with a density of 3.10, is often used in traditional medicine and could contribute to the local community's ethnobotanical resources, emphasizing the potential overlap between ecological and cultural value (Parmar & Kar, 2008).

Plate 1: Some of the Selected Plants List at Janekal Village Manvi

Most of these plants such as *Phyllanthus amarus*, and *Sida acuta* among others, are used medicinally in Ayurvedic /folkloric systems of medicine as mentioned by Baskin*,* (1998). Their density coefficients are moderate suggesting they are not extremely dominant or scarce and hence fit the sustainable harvesting trend. For biological and cultural diversity, the populations must be saved. Habitat Health and Biodiversity of the density distribution across different species implies some relative species of diverse families. A fragment occupied by several species of different densities is preferable, as it may suggest a balanced plant mutualistic system and relatively complex interactions. High-density species like *Cynodon dactylon* and *Oldenlandia corymbose* contribute to ecological resilience by supporting different trophic levels. Their roles as primary producers create a foundation for food chains that support insect, bird, and small mammal populations (Singh *et al*., 2019).Species found in high density and that act highly invasive like Parthenium hysterophorus and Prosopis juliflora should be conserved. It also showed that both species can change the conditions of inhabited habitats affecting native plants and, therefore, the overall species richness. Management plans should therefore envisage the continuation of the spread of those species while ensuring the growth of native species is kept checked. Some of the selected plants list is given in Plate 1.

Among the species with higher density values (3.0 and above), the density values were determined as *Blepharis maderaspatensis*, 3.5, and *Gomphrena celosioides*, 3.5. This suggests a widespread and frequent distribution across the study area. Populations with high-density values are described by such plant characteristics that allow them to survive and reproduce under certain conditions and often define the structural characteristics of the community. In the abundance scale, *Digera muricata* obtains the highest (6.40) which ascertains that the species is recorded with much individuality. Other species, such as *Pavonia odorata* with a mean abundance of 6.20, and *Blepharis maderaspatensis* with a mean abundance of 5.83, also appear to be characteristic species that can indeed be resilient to changes in environmental conditions like water availability or temperature. High-density and high-abundance species, for example, *Dactyolectnium aegypticum* and *Amaranthus viridis*could be less competitive or may occupy niche habitats within the ecosystem. Plant species that scored relatively lower density and abundance, could be less competitive or possibly occupy certain ecological pains of the ecosystem; for instance*, Prosopis juliflora* (density 3.0, abundance 4.29). Identification of species with lower density but distinct abundances like *Sida cordata* have a density of 3.30 and an abundance of 5.50 and *Cynodon dactylon* having a density of 3.30 and an abundance of 4.71 helps compare their growth patterns. This variance could have been caused by the difference in either growth forms, reproducing process, or the ecological preferences of the ferns that might have influenced their ability to spread within a given area.

Species frequency is the number in which a species is present within sampling units in the concerned study area. High frequency means that the species is likely to be widespread, while a low frequency means that the species has a more restricted distribution and is likely to be more environment sensitive. This dataset identifies several species as being recurrent in the study area, and in particular, *Trianthema portulacastrum* and *Alternanthera sessilis* both have a frequency of 90; this shows their ubiquitous presence in the sampling units. These species may perfectly fit into the environmental conditions of the area and demonstrate impressive levels of ecological flexibility, as well as possible resistance to such factors as drought or adverse soil conditions. Just as with the previous ecosystem, *Dicliptera paniculata, Justicia glauca, Gomphrena celosioides, Carissa spinarum and Oxystelma esculentum* all have a frequency of 80 putting emphasis on the fact that they also dominate this ecosystem type and often play essential roles in respective ecosystems. For example, *Trianthema portulacastrum* is an annual herb, that usually appears in disturbed soils, which is why its plant can be useful for soil stabilization and be used as ground cover, preventing soils from erosion. *Alternanthera sessillis* is used medicinally and may support insects and pollinators in local ecosystems. Such widespread species can affect nutrient cycling and water-holding capacity, which affects the health of ecosystems. *Parthenium hysterophorus* and *Prosopis juliflora* are considered as invasivespecies and dominant in many 70-frequency species categories. *Parthenium hysterophorus* is an aggressive invader that could cause significant modification of native plant communities because it competes effectively for resources with other native plants thereby reducing the negative impact of biodiversity.On the other hand, *Prosopis juliflora* and *Dichrostachys cineria* are drought-adapted species that provide benefits such as stabilization of soil and shade in desert ecosystems although they can be both invasive and affect plant composition in those ecosystems in ways that may not easily be contained.

The generic level distribution with number of species present are Blepharis (2), Justicia (2), Alternanthera (3), Aerva (2), Amaranthus (2), Calotropis (2), Aristolochia (2), Blumea (4), Launaea (2), Tricholepis (2), Heliotropium (2), Trichodesma (2), Capparis (4), Cleome (3), Commelina (4), Cyanotis (3), Cuscuta (2), Ipomea (4), Cucumis (2), Cyperus (4), Chrozophora (2), Euphorbia (3), Albizia (2), Alysicarphus (2), Chamaecrista (2), Crotalaria (6), Grona (2), Indigofera

(6), Mimosa (2), Prosopis (2), Senna (4), Stylosanthes (2), Tephrosia (3), Vachellia (5), Leucas (2), Ocimum (2), Abutilon (2), Corchorus (3), Grewia(3), Hibiscus (3), Pavonia (2), Sida (4), Boehravia (2), Striga (2), Phyllanthus (4), Aristida (2), Dichanthium (2), Dinebra (2), Eragrostis (2), Ziziphus (4), Datura (2), Physalis (2) and Solanum (2), shown in Figure 4.

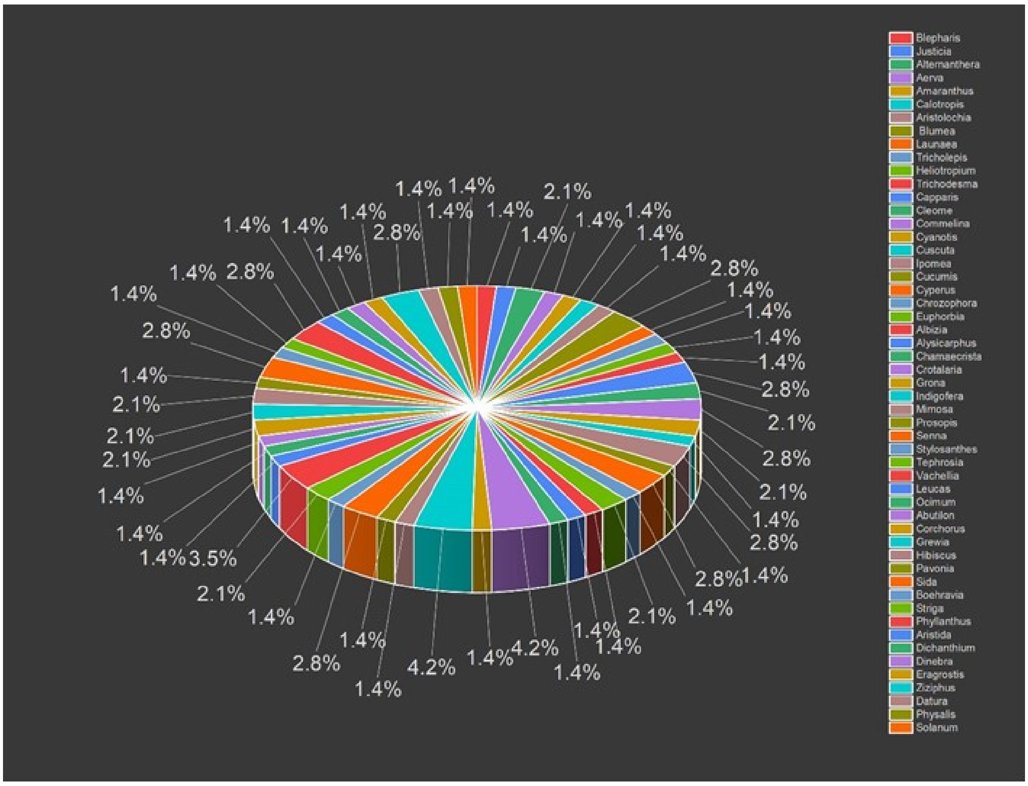

Figure 4: Generic Level Distributionof Janekal Village Manvi Taluk Raichur District Karnataka India

The study of the number of floral species within an area by the use of factors like the Shannon-Weiner; Simpson's and Species Diversity offers information on the ecological health of the region. The Shannon-Weiner Diversity Index (H') is an ecosystem heterospectacle index in any community, depicted in Figure 5. This measures the number of species and also their distribution among the different areas of the environment. Meaning that the higher the value, the better the diversity of the stocks available in the particular market. The result is 4.59 which outlines that the area has got a high diversity of species in Janekal Mani. This has implications for a diverse community structure since it favours resistance against changes and disturbances within the environment (Magurran 1988; Shannon and Weaver, 1949).

High diversity can enhance the stability and co-functionality of the ecosystems, with several processes such as pollination, seed, and nutrient cycling (Tilman 1996; Loreau &Hector 2001). Another population-level index is Simpson’s Diversity Index (D), which quantifies species richness by relating it to the chance that any two individuals in a population sample are of the same species. The value of 1.00 implies complete dominance by one or a few species, which can indicate lower diversity. A value of 1.00 may suggest a skewed distribution where one or a few species are very abundant while others are rare. This could potentially lead to vulnerabilities in the ecosystem, as it may be less resilient to invasive species or environmental changes (Simpson, 1949; Magurran, 2004). It’s important to analyse the composition of species to understand the implications of this index.

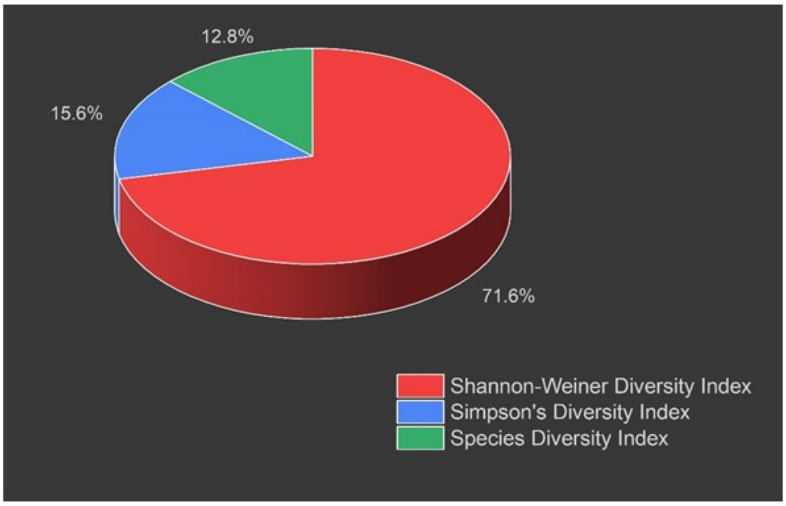

Figure 5: Floristic Diversity Index of Janekal Manvi Raichur

The Species Diversity Index gives another way of measuring the flow of species and distribution of species in abundance in a community. Whereas a value close to 1 shows a higher diversity, a value less than 1 shows that the ecosystem of the sample data is less diverse. An SDI of 0.82 means moderate species diversity of species within the analysed environment. Altogether, there is an indication that further attention should be paid to the species composition and their roles in ecosystems (Smith and Smith, 2009; Whittaker, 1972).

The Ecological Implications of the Shannon-Weiner and Simpson's indices therefore indicate that although Janekal Mani has many different species (H' > 1) it may have one, or a few large species (D). These may suggest current ecological disequilibria or forces influencing the distribution of species (Cardinale *et al.,* 2012). To find out more about what can be done to preserve the species and the community the basics of the assessment of the indices of the biodiversity are presented. In most cases, high diversity (H') is preferred for ecosystem stability, but the high value of D and moderate SDI implies that certain management measures could be adopted to enhance the population of less dominant species and ensure the steady functioning of ecosystems (Hooper *et al*., 2005). Frequent evaluation of the species interactions, population growth, and different forces of the environment in Janekal Mani are suggested to get a better insight into ecosystem health (Duffy, 2003).

4. CONCLUSION

In conclusion, the floristic diversity assessment in Janekal Village, Manvi Taluk, Raichur District, Karnataka, reveals significant ecological richness and diversity. The calculated indices, including the Shannon-Weiner Diversity Index, Simpson's Diversity Index, and Species Diversity Index, indicate a healthy variety of species, suggesting stable ecosystem dynamics. High diversity, therefore, will indicate the physical characteristics of the environment that a major number of plant species can adapt to, and both the number of plant species in an area and the number of species within a given habitat type that individuals can access are assumptive of the sustainability of the physical and biological resources in the region. Species richness and evenness are fairly balanced according to the values of the Shannon-Weiner Index which also implies that the habitats can withstand possible invasions of the new species or environmental shifts comparatively with less-sensitive ecosystems. Simpson's Diversity Index also speaks for the lack of dominance in species or the presence of homogeneous species thereby supporting species evenness for stable biodiversity. These results therefore provide support that conservation of the privileges is necessary to sustain the equilibrium in the ecosystems as well as to shelter the native species against adverse forces of their environment. It presented baseline data that may aid additional ecological survey and resource utilization processes to continue taking measures to conserve biophysical diversity in Janekal Village. Further research could be directed at comparing changes in floristic diversity through time and identify detailed spatial factors that influence distribution of plants in this region.

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