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DISTRIBUTION AND DIVERSITY OF FLORA AND FAUNA IN AND AROUND KUVEMPU UNIVERSITY CAMPUS, BHADRA WILDLIFE SANCTUARY RANGE, KARNATAKA

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ABSTRACT: The study was conducted to document the diversity of flora and fauna in and around Kuvempu University campus in Shivamogga district of state Karnataka, India. Number of field trip was undertaken to enumerate the biodiversity and specimens were collected for identification. Among floral diversity, Fabaceae shows domination with 11 Genus which includes total of 14 species and followed by Malvaceae with 5 different genus consisting of 8 species. In the study area 78 Species of Birds, 28 Species of Insects, 21 Species of Butterflies, 27 Species of Reptiles, 12 Species of Amphibians, 14 Species of Mammals were documented.
Key words: Biodiversity, Bhadra wildlife Range, Kuvempu University

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INTRODUCTION

India being a mega diversity center harbors 4,780 species of plants, 259 species of reptiles, 146 species of Amphibians, 528 species of birds and 140 species of mammals. Recently with the increased consciousness for Biodiversity census and monitoring many new species are discovered or re-described. Biodiversity is important because species and ecosystem provide the basis of human civilization [1]. Mankind is dependent on other species for the maintenance of the biosphere and the supply of basic necessities like food, shelter, clothing, medicines and so, on. Human being couldn't survive without the crucial services that are provided by nature including stabilizing, climate protecting watersheds [2]. Cycling essential elements such as Carbon, Nitrogen and Sulfur, protecting nurseries and breeding grounds for harvested species [3]. Conserving for these ecological pressures, protection of individual species is very important. Biodiversity has ethical, social and economical value though values are different to quantify. The contribution of biodiversity to the gross domestic product of various countries is increasingly realized today by the policy maker and therefore its values are being recognized and taken into consideration during the planning process [4].

The value of biodiversity cannot be assessed as how far it can be utilized in term's money or material for human beings. It has to be remembered that, like human being all other living organisms have the right to live and have to play a big role in providing stability to the entire biosphere [5].

The present study has been carried out to make an account of Biodiversity in Shankaraghatta, from Bhadra wild life forest region. Repeat census scheduled for subsequent years, will elucidate the behaviour of the individual species and the population dynamics of the tree flora and will be useful for forest conservation and management. It will also help to monitor human activity within this forest [6].

STUDY AREA

The focal area for study, Kuvempu University campus is located in Shankaraghatta, Bhadravathi taluk of Shivamogga district, Karnataka state, India. The Geographical position of the study area is 13° 42^{1} 22^{11} N and 75° 30^{1} 2^{11} E Altitude (680-720). It is 24 km south-east away from Shimoga city and 4 km north of Bhadra reservoir, It is surrounded amidst the dry deciduous forest and on the edge of the Bhadra Tiger Reserve. The total area covers 326.21 acres with varied habitats from undulated hilly terrain to manmade wet lands. The climate of this area is healthy, pleasant and moderately cool. During winter season, temperature ranges from 18°C–36°C, the relative humidity throughout the year ranges between 60-75%. The area receives an average rainfall of about 1000-mm.

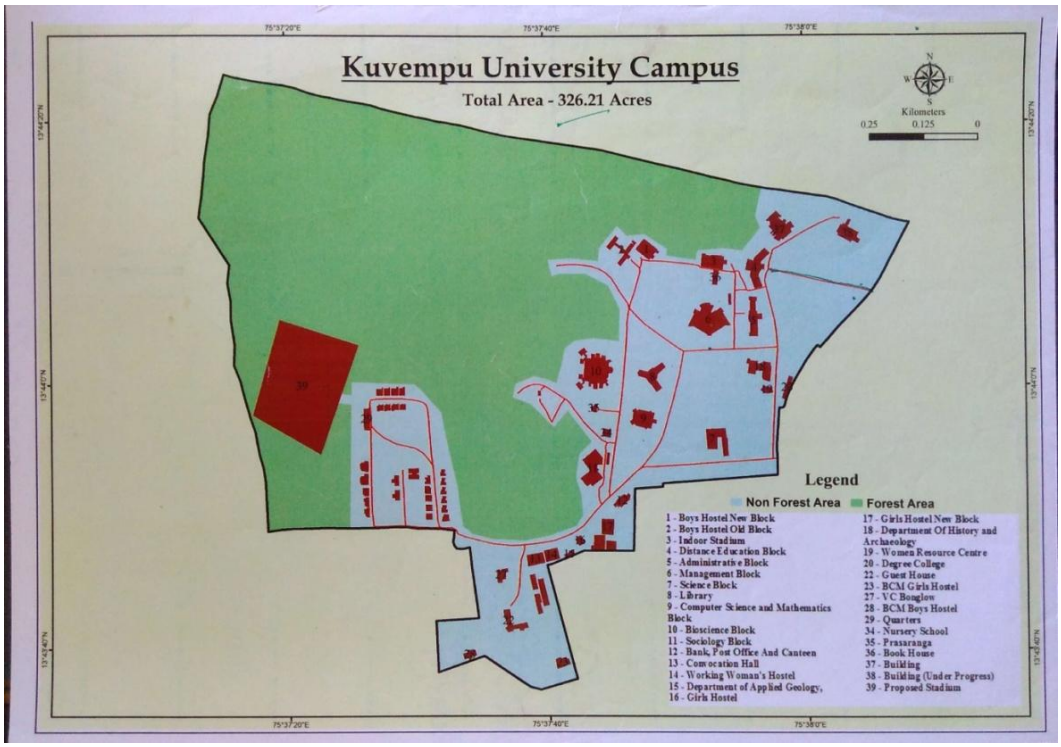

Figure 2: Map of study area

MATERIALS AND METHODS

Plant diversity study was undertaken to check and document the floral diversity in the campus. Ten localities were chosen based on the abundance of trees, herbs and shrubs. In the present study quadrate method was used for analyzing the vegetation. Analytical characters were obtained by square type quadrate method. 10m×10m quadrates were placed in each locality and counted the number of trees, shrubs, herbs. The standard method was followed for quadrate study [7]. Frequency, abundance and dominance were calculated [8]. Botanical description was interpreted using International Plant Name Index (IPNI) list [9]. Plants were identified using Flora of the presidency of Madras by Gamble.J.S. [10]. The specimens were allotted with voucher numbers and deposited in the Department of Environmental Science, Kuvempu University herbaria.

Insects were collected, identified and preserved, belongs to different groups, orders and families. Standard guide [11] and [12].

Bird species diversity study was conducted in and around campus during early hours and evening hours of the day for several months with seasonal intervals. In each day the diversity was recorded along with morphological characteristics and identified using standard book [13].

Reptiles, amphibians were documented by direct sighting. They were recorded along with photographs and morphological characteristics for further identification using standard book [14].

Mammals were recorded by direct sighting. Their pug marks, dung were taken into consideration in the documentation study.

RESULTS AND DISCUSSION

In the study the results reveals that field observation data indicates that total of 69species of plants belonging to 28 different families. Among which 39 species of trees, 17 species of shrubs, 12 species of herbs recorded. The study also records 27 species of reptiles, 12 species of amphibians, 78 species of birds, 49 species of insects including butterflies and 14 species of mammals. The plant diversity shows the following families namely Fabaceae, Malvaceae, Apocynaceae, Asteraceae, Combretaceae, are dominated. In these Fabaceae toped the list with 11 Genus which includes total of 14 species followed by Malvaceae with 5 genus consisting of 8 species. Among the recorded quadrate information, tree species dominated around the study area with dry deciduous habitat. Similar Plants such as *Terminalia paniculata, Terminalia tomentosa, Xylia xylocarpa* species are top canopy trees present in abundant number. In the ground layer *Stachytarphyta indica* (L.) .Vahl. Similarly other species were also recorded in which some of them are woody and economically important plants. In addition to this, individual species were counted, *Terminalia paniculata* shows highest in number followed by *Santalum album* species, but the other species are sparsely distributed. Frequency, density and abundance of floral distribution were calculated, it shows 10-80% of frequency, density 0.1-4.8 and abundance of *Terminalia* species shows 48 and number of regeneration in the campus. Similarly herbs are more in number compared to shrubs climbers. Further abundance of trees, shrubs, herbs also recorded in the campus. Species distribution of insects, reptiles, birds and Mammals group were identified and table no 10 reveals the list. Insects were found to dominate. A large variety of insects including some of the spectacular *Butterflies* were documented during our study. However 9 species of reptiles and 12 species amphibians were recorded. Among reptiles, garden lizard, rock lizard and tree lizards are commonly distributed. Similarly tree frogs, toads are common in and around campus where as Bush frogs commonly seen during rainy seasons only. In the dry season they were almost inactive and prefer moist area near water bodies to reside and rarely encountered.

Table-1: Species diversity, frequency, dominance and Abundance of individual species recorded.

S.No	Plants Names	Family	F %	D	A
1	*Acacia auriculiformis* Benth.	Fabaceae	40	1.2	3.0
2	*Acacia pennata* (L.) Willd.	Fabaceae	40	1.0	2.5
3	*Asclepias curassavica* L.	Apocynaceae	40	4.4	11
4	*Albizia saman* (Jacq.) Merr.	Fabaceae	20	0.3	1.5
5	*Anogeissus latifolia* (Roxb. ex DC.) Wall. ex Bedd.	Combretaceae	80	2.8	3.55
6	*Bacopa monnieri* (L.) Wettst.	Plantaginaceae	80	3.4	4.25
7	*Bambusa bambos* (L.) Voss	Poaceae	10	0.1	1.0
8	*Bambusa vulgaris* Schrad.	Poaceae	30	0.7	2.33
9	*Bauhinia racemosa* Lam.	Fabaceae	20	0.5	2.5
10	*Bombax ceiba* L.	Malvaceae	20	0.5	2.5
11	*Butea monosperma* (Lam.) Taub.	Fabaceae	10	0.2	2.0
12	*Caesalpinia crista* L.	Fabaceae	30	0.5	1.66
13	*Careya arborea*	Lecythidaceae	70	2.0	2.8
14	*Cassia fistula* L.	Fabaceae	20	0.2	1.0
15	*Cardiospermum halicacabum* L.	Sapindaceae	10	0.1	1.0
16	*Chloris barbata* Sw.	Poaceae	40	1.6	4.0
17	*Chromolaena odorata* (L.) R.M.King & H.Rob.	Asteraceae	40	5.8	14.5
18	*Clerodendrum serratum* var. *dentatum* H. J. Lam	Lamiaceae	20	0.6	3.0
19	*Clerodendrum infortunatum* L.	Lamiaceae	20	0.6	3.0
20	*Canscora diffusa* (Vahl) R.Br. ex Roem. & Schult.	Gentianaceae	60	4.2	7.0
21	*Cyanotis cristata* (L.) D.Don	Commelinaceae	40	1.4	3.5
22	*Cyanthillium cinereum* (L.) H.Rob.	Asteraceae	80	5.4	6.75
23	*Dalbergia latifolia* Roxb.	Fabaceae	10	0.2	2.0
24	*Dalbergia sissoo* Roxb.	Fabaceae	10	0.1	1.0
25	*Dioscorea bulbifera* L.	Dioscoreaceae	40	1.4	3.5

26	*Diospyros montana* Roxb.	Ebenaceae	50	1.2	2.44
27	*Elephantopus scaber* L.	Asteraceae	40	1.4	3.5
28	*Eucalyptus globulus* Labill	Myrtaceae	10	2.0	20.0
29	*Ficus benghalensis* L.	Moraceae	20	0.3	1.5
30	*Ficus racemosa* L.	Moraceae	10	0.1	1.0
31	*Ficus arnottiana* (Miq.) Miq.	Moraceae	20	0.2	1.0
32	*Helicteres isora* L.	Malvaceae	40	2.0	5
33	*Hemidesmus indicus* (L.) R. Br. ex Schult.	Apocynaceae	20	0.2	1.0
34	*Holarrhena pubescens* Wall. ex G.Don	Apocynaceae	60	1.6	2.66
35	*Ipomoea carnea* Jacq.	Convolulaceae	40	2.6	6.5
36	*Jasminum malabaricum* Wight	Oleaceae	60	2.4	4.0
37	*Lantana camara* var. *aculeata* (L.) Moldenke	Verbenaceae	20	2.0	10
38	*Mimosa pudica* L.	Fabaceae	60	8.2	13.6
39	*Mitragyna parvifolia* (Roxb.) Korth.	Rubiaceae	20	0.2	1.0
40	*Oroxylum indicum* (L.) Kurz	Bignoniaceae	60	3.2	5.33
41	*Oxalis corniculata* L.	Oxalidaceae	40	102	3.0
42	*Pentanema indicum* (L.) Ling	Asteraceae	60	3.4	5.6
43	*Phyllanthus amarus* Schumach. & Thonn.	Phyllanthaceae	40	7.6	19.0
44	*Phyllanthus emblica* L.	Phyllanthaceae	20	0.5	2.5
45	*Polygala arvensis* Willd.	Polygalaceae	80	5.8	7.25
46	*Pongamia pinnata* (L.) Pierre	Fabaceae	10	0.1	1.0
47	*Radermachera xylocarpa* (Roxb.) Roxb. ex K.Schum.	Bignoniaceae	10	0.2	2.0
48	*Santalum album* L.	Santalaceae	60	2.8	4.6
49	*Scoparia dulcis* L.	Plantaginaceae	30	0.5	1.66
50	*Semecarpus anacardium* L.f.	Anacardiaceae	30	0.5	1.66
51	*Senna siamea* (Lam.) H.S.Irwin & Barneby.	Fabaceae	10	0.2	2
52	*Senna tora* (L.) Roxb.	Fabaceae	40	3.0	7.5
53	*Sida acuta* Burm.f.	Malvaceae	40	3.0	7.5
54	*Sida cordata* (Burm.f.) Borssum	Malvaceae	40	9.4	23.5
55	*Sida cordifolia* L.	Malvaceae	20	2.6	13.0
56	*Sida rhombifolia* L.	Malvaceae	20	6.0	30.0
57	*Smilax zeylanica* L.	Smilacaceae	60	2.2	3.66
58	*Solanum rudepannum* Dunal	Solanaceae	20	0.4	2.0
59	*Spermacoce articularis* L.f.	Rubiaceae	40	1.0	2.5
60	*Syzygium cumini* (L.) Skeels	Myrtaceae	20	0.4	2.0
61	*Tecoma stans* (L.) Juss. ex Kunth	Bignoniaceae	20	0.4	2.0
62	*Tectona grandis* L.f.	Lamiaceae	40	1.4	3.5
63	*Terminalia paniculata* Roth	Combretaceae	80	4.8	6
64	*Terminalia tomentosa* Whight & Arn.	Combretaceae	10	0.1	1
65	*Triumfetta rhomboidea* Jacq.	Malvaceae	80	6.0	7.5
66	*Urena sinuata* L.	Malvaceae	60	2.0	3.3
67	*Vigna adenantha* (G.Mey.)Marechal & al.	Fabaceae	60	2.8	4.0
68	*Wrightia tinctoria* R.Br.	Apocynaceae	30	0.3	1.33
69	*Xylia xylocarpa* (Roxb.) Taub.	Fabaceae	70	2.8	4.0

Note: F=Frequency, **D**=Density, **A**=Abundance, **Do**=Dominance

Over 78 species of birds were recorded, in which Egrets, Sparrows, Bulbuls, Crows, Bea-eaters were common. The forest of the area have large herbivores, such as, Spotted deer, Barking deer, Sambar, Wild boar, squirrel. The spectacular, showy Malabar gaint squirrel found to be abundant in and around campus. Among insects, *Grasshoppers, Centipedes, Millipedes, Bagworms, Earwigs, Red* ants and *Kissing bugs* were dominating. *Spiders, Termites, Wasps* were distributed in large numbers in the campus. Among Butterflies, *Pansys, Leopards, Sailors, and Emigrants* are dominating. Among primates the Lungurs, one of the endangered primates are found in deciduous forests of Western Ghats. Carnivorous represented by Leopard, Wild dog and Mongoose. The campus is in the outer edge of reserved forest, Bhadra wildlife Sanctuary and also it includes Bhadra tiger reserve. Therefore rarely in the recent dry seasons tiger sighted in associated forest of the village, near by the campus. Large diversity of flora and fauna sustaining in the study area because of the associated reserved forest.

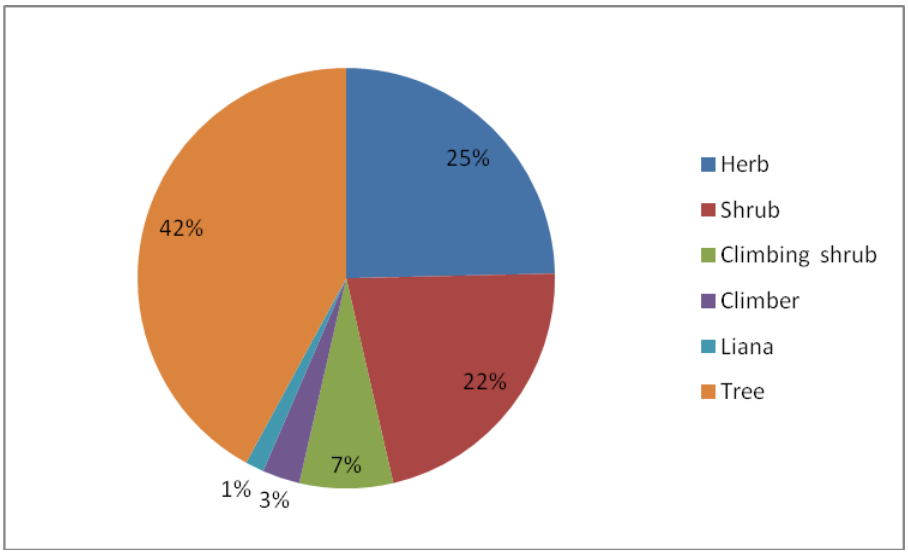

Fig-2: - Habit distribution of flora recorded in the study area

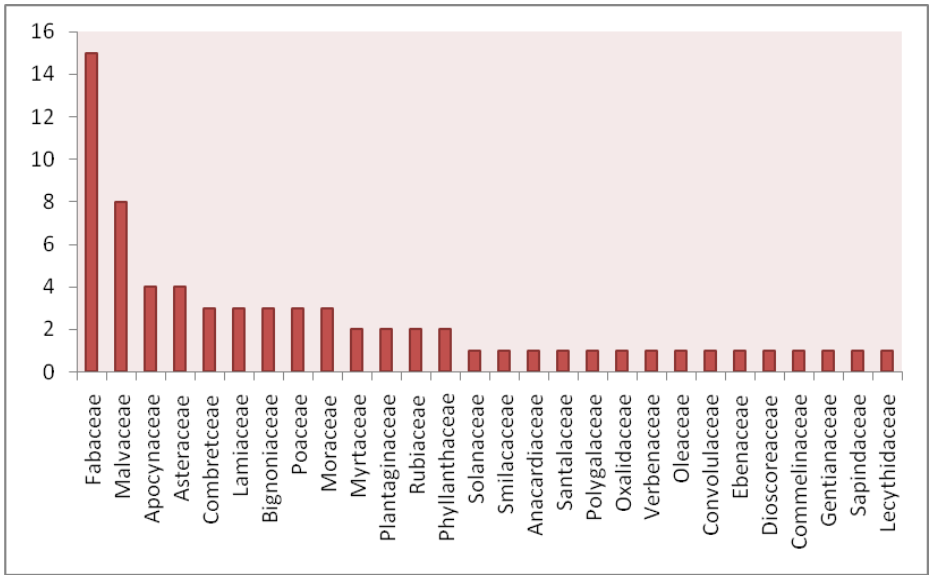

Fig-3:- Family wise distribution of flora recorded in the study area.

Table-2: Epiphytes documented in the study area.

Epiphytes			
S. No	**Common name**	**Botanical name**	**Status**
1	Common Fox-Tail Orchid	*Rhynchostylis retusa* (L.) Blume	Rare
2	Common Parasite	*Viscum* sp	Common
3	Long-leaved Mistletoe	*Dendrophthoe falcata* (L.f.) Ettingsh.	Common

Table-3: Ground Orchid recorded in the study area.

Terrestrial Orchid			
S. No	**Common name**	**Botanical name**	**Status**
1	Plantain Habenaria	*Habenaria plantaginea* Lindl.	Rare

Table-4: List of Macrophytes documented in the study area.

Aquatic flora				
S.No	**Common name**	**Botanical name**	**Family**	**Status**
1	The Native Fragrant water Lily	*Nymphea odorata* Aiton	Nympheaceae	Abundant
2	The Sacred Lotus	*Nelumbo nucifera* Gaertn.	Nelumbonaceae	Abundant
3	Common Ipomoea	*Ipomoea aquatica* Forssk.	Convolulaceae	Abundant
4	Common Nymphoides	*Nymphoides indica* (L.) Kuntze	Menyanthaceae	Abundant
5	Salvinia	*Salvinia adnata* Desv.	Salviniaceae	Common
6	Pistia	*Pistia stratiotes* L.	Araceae	Common
7	Water Chest nut	*Trapa natans* var. *bispinosa* (Roxb.) Makino	Lythraceae	Common
8	Azolla	*Azolla pinnata* subsp. *asiatica* R.M .K. Saunders & K. Fowler	Salviniaceae	Common

Table-5: List of Insect species recorded in the study area.

Insects			
S.No	**Common name**	**Scientific name**	**Status**
1	South hawker	*Aeshna cyanea* Muller	Common
2	Great Green Bushcricket	*Tettigonia viridissima* Linnaeus	Very common
3	Praying Mantis	*Mantis religiosa* Linnaeus	Common
4	House Cricket	*Acheta domestica* Linnaeus	Very common
5	American Cockroach	*Blatta orientalis* Linnaeus	Rare
6	The Common Brown Mantid	*Idolomantis diabolica* Saussure	Rare
7	Mound Termites	*Bellicositermes natalensis*	Common
8	Odento Termites	*Odontotermes badius*	Common
9	Tiger Beetles	*Cicindela octonotata* Wiedemann	Very common
10	Common Tiger Beetles	*Cicindela galeata*	Very common
11	The Spanish Fly	*Lytta versicatoria* Linnaeus	Rare
12	A Tsetse Fly	*Glossimas sp*	Rare
13	Common Earwig	*Forficula auricularia* Linnaeus	Very common
14	Honey Bees	*Apis mellifera* Linnaeus	Common
15	Common Honey Bees	*Apis dorsata* Fabricius	Rare
16	Masked hunter	*Reduvius personatus* Linnaeus	Common
17	Bag Worm moth	*Psychidae Species*	Rare
18	Antlion	*Myrmeleo sp*	Common
19	Red Wood Ant	*Formica rufa* Linnaeus	Common
20	Common Wasp	*Vespula vulgaris* Linnaeus	Common
21	Red Wasp	*Vespula rufa* Linnaeus	Rare
22	Short Horned Grasshopper	*Acridid sp*	Common
23	Long Horned Grasshopper	*Tettigonid sp*	Very common
24	Common Centipedes	*Scutigera coleoptrata*	Common
25	Common Millipedes	*Polyxenus lagurus*	Common
26	Black Scorpions	*Chactopsis insignis*	Very common
27	Common Wasp [Mound]	*Campanatus sericines*	Common
28	Common Mole Cricket	*Scapteriscus acletus*	Common

By the study we also found that degradation of forests in the campus due to encroachment of land for building purpose. But for the benefit of aesthetic recreation and ecosystem maintenance, it is necessary to maintain green vegetation in the campus. This would help to conserve the other animals with the help of green belt. The quadrate study was conducted, calculated the number of trees in the area. Most of the area encroached in the study is dominated by trees and supports biodiversity. The present study concludes that conservation of identified species is more important because the most crucial problem is habitat loss due to interference of human activity and fragmentation due to various developmental projects in the campus.

Table-6: List of Butterfly species recorded in the study area

Butter flies				
S.No	**Common Name**	**Scientific Names**	**Wing Span [mm]**	**Ecological Status**
1	Blue Pansy	*Precis orithya*	40-60	Common
2	Common Leopard	*Phalanta phalantha*	50-60	Common
3	Common Sailor	*Neptis hylas*	50-60	Common
4	Lemon Pansy	*Precis lemonia lemonia*	50-60	Common
5	Grey Pansy	*Junonia atlites*	55-65	Common
6	Peacock Pansy	*Junonia almana*	50-60	Common
7	Tawny Coster	*Acraea terpiscore*	50-65	Common
8	Crimson Rose	*Pachliopta aristolochia*	90-110	Common
9	Southern Birdwing	*Troides minos*	140-190	Endemic
10	Tailed Jay	*Graphium agamemnon*	85-100	Common
11	Common Crow	*Euploe core*	80-95	Rare
12	Blue Tiger	*Tirumala limniacea*	90-100	Common
13	Striped Tiger	*Danaus genutia*	75-95	Common
14	Plain Tiger	*Danaus chrysippus*	70-80	Common
15	Pea Blue	*Lampides beetius*	24-36	Common
16	Gram Blue	*Euchrysops cnejus*	25-33	Very common
17	Common Pierrot	*Castallius rosimon*	24-32	Rare
18	Common Grass Yellow	*Eurema hecabe*	40-50	Very common
19	Common Emigrant	*Catopsilla Pyranthe*	50-70	Common
20	Common Evening Brown	*Melanitis leda*	60-80	Rare
21	Grass Demon	*Udaspes folus*	40-48	Very common

Table-7: List of Bird species recorded in the study area

Birds				
S.No	**Common Name**	**Scientific name**	**Status of bird**	**Ecological Status**
1	Great Stone Plover	*Esacus magnirostris*	R	Common
2	Common Coot	*Fulica atra*	R	Common
3	Watercock	*Gallicrex cinera*	R	Common
4	Large Egrets	*Ardea alba*	R	Common
5	Open billed Stork	*Anastonces oscitans*	M	Rare
6	White ibis	*Threskiornis oethiopica*	M	Rare
7	Indian River Tern	*Sterna aurantia*	M	Rare
8	Red Wattled Lapwings	*Venellus indicus*	R	Common
9	Little Cormarant [Water Crow]	*Phalaerocorax niger*	R	Common
10	White throated Kingfisher	*Halcyon smyrnensis*	R	Common
11	Common Hill Pigeon	*Columba rupestris*	R	Common

12	Little Green Beaeater	*Merops orientalis*	R	Rare
13	Grey Headed Hill Myna	*Sturnus malabaricus*	R	Rare
14	Forest Long horned Owl	*Bubo bengalensis*	R	Rare
15	Wood Pigeon	*Columba palumbus*	R	Common
16	Scarlet minivet	*Pericrocotus flammeus*	R	Common
17	Indian Paradise Fly -catcher	*Terpsiphone paradisi*	M	Rare
18	Asian Koel	*Eudynamys scolopacea*	R	Common
19	Short-toed Snake Eagle	*Circeatus gallicus*	R	Common
20	Common House Sparrow	*Passer domesticus*	R	Common
21	Brahminy Myna	*Sternus pagodarum*	R	Common
22	Indian Peafowl	*Pavo cristatus*	R	Common
23	Greater Racket Tailed Drongo	*Dicrurus paradiseus*	R	Common
24	Black Drongo	*Dicrurus macrocercus*	R	Common
25	Indian Golden Oriole	*Oriolus kundoo*	R	Common
26	Chestnut headed bee eater	*Merops leschenaulti*	R	Common
27	Malabar Grey Hornbill	*Ocyceros griseus*	R	Rare
28	Indian Grey Hornbill	*Ocyceros birostris*	R	Rare
29	Jerdon's Leaf Bird	*Chloropsis jerdoni*	R	Rare
30	Indian Roller	*Coracias benghalensis*	R	Common
31	Purple rumphed sunbird	*Leptocoma zeylonica*	R	Common
32	Greenish Warbler	*Phylloscopus trochiloides*	M	Rare
33	Orange Headed Thrush	*Geokichla citrina*	R	Rare
34	Indian Pitta	*Pitta brachyura*	R	Common
35	Red Wiskered Bulbul	*Pycnonotus jocosus*	R	Common
36	Red Vented Bulbul	*Pycnonotus cafer*	R	Common
37	Rufous treepie	*Dendrocitta vagabunda*	R	Common
38	Indian Robin	*Copsychus fulicatus*	R	Common
39	Yellow Wagtail	*Motacilla flava*	M	Rare
40	Common Myna	*Acridotheres tristis*	R	Common
41	Jungle Myna	*Acridotheres fuscus*	R	Common
42	House Crow	*Corvus splendens*	R	Common
43	Bronze Winged Jacana	*Metopidius indicus*	R	Common
44	Indian Pond Heron	*Ardeola grayii*	R	Common
45	Small Blue Kingfisher	*Alcedo atthis*	R	Common
46	Spotted Dove	*Spilopelia chinensis*	R	Common
47	White Cheeked Barbet	*Psilopogon viridis*	R	Common
48	Grey Jungle Fowl	*Gallus sonneratii*	R	Common
49	Amur falcon	*Falco amurensis*	M	Rare
50	Comman tailor bird	*Orthotomus sutorius*	R	Common
51	Black headed oriole	*Oriolus larvatus*	M	Rare
52	Comman iora	*Aegithina tiphia*	R	Common
53	Ashy crowned sparrow lark	*Eremopterix griseus*	R	Rare
54	Comman hawk cuckoo	*Cuculus canorus*	R	Rare
55	Tickell's blue fly catcher	*Cyomis tickelliae*	R	Common
56	Yellow billed babbler	*Turdoides affinis*	R	Common
57	Asian palm swift	*Cypsiurus balasiensis*	R	Common
58	Red rumped swallow	*Cecropis daurica*	R	Common
59	Paddy field pipit	*Anthus rufulus Malay*	R	Common
60	Jerdon's bushlark	*Mirafra affinis*	R	Common

61	White browed wagtail	*Motacilla maderaspatensis*	R	Common
62	Oriental magpie robin	*Copsychus saularis*	R	Common
63	Greater flame back woodpecker	*Chrysocolaptes guttacristatus*	R	Common
64	Jungle crow	*Corvus macrorhynchos*	R	Common
65	Black kite	*Milvus migrans*	R	Common
66	Black winged kite	*Elanus axillaris*	R	Rare
67	Spotted owlet	*Athene brama*	R	Rare
68	Yellow wattled lapwing	*Vanellus malabaricus*	R	Rare
69	White breasted wterhen	*Amaurornis phoenicurus*	R	Common
70	Grey headed swamphen	*Porphyrio poliocephalus*	R	Common
71	Brahminy kite	*Haliastur Indus*	R	Common
72	Indian Peafowl	*Pavo cristatus*	R	Common
73	Jungle babbler	*Turdoides striata*	R	Rare
74	Purple sunbird	*Aethopyga siparaja*	R	Common
75	Orange miniwet	*Periccrocotus spesiosus*	R	Common
76	Rose ringed parakeet	*Psittacula krameri*	R	Common
77	Great caucal	*Centropus sinensis*	R	Common
78	Shikra	*Accipites badius*	R	Common

R: Resident, M: Migratory

Table-8: List of Reptile Species recorded in the study area.

S/N.	Common Name	Scientific Name	Family
1	Brook's House Gecko	*Hemidactylus brookii*	Geckonidae
2	Common Yellow House Gecko	*Hemidactylus frenatus*	Geckonidae
3	Oriental Garden Lizard	*Calotes versicolor*	Agamidae
4	Roux's Forest lizard	*Calotes rouxii*	Agamidae
5	Indian Chameleon	*Chamaeleo zeylanicus*	Chamaeleonidae
6	Bronze Grass Skink	*Eutophism acularia*	Scicidae
7	Common Snake Skink	*Lygosoma puncata*	Scicidae
8	Bengal Monitor Lizard	*Varanus bengalensis*	Varanidae
9	Spectacle Cobra	*Naja naja*	Elapidae
10	Common Krait	*Bangarus caerulus*	Elapidae
11	Russell's Viper	*Daboia russelii*	Vipredae
12	Saw Scaled Viper	*Echis carinatus*	Vipredae
13	Bamboo Pit Viper	*Timersurus gramunus*	Vipredae
14	Oriental Rat Snake	*Ptyas mucosa*	Colubridae
15	Common Wolf Snake	*Lycodon aulicus*	Colubridae
16	Russell's Kukri	*Oligodon taeniolatus*	Colubridae
17	Common Cat Snake	*Boiga trigonata*	Colubridae
18	Checkered Keelback	*Xenochrophis piscator*	Nitricedae
19	Indian Rock Python	*Python molorus*	Pythonedae
20	Brahmini worm snake	*Ramphotyphalops braminus*	Typhlopidae
21	Fan Throated Lizard	*Sitana ponticeriana*	Agamidae
22	Common Garden Lizard	*Calotes versicutor*	Agamidae
23	Common Mabuya	*Mabuya carinata*	Mabuyinae
24	Common Tree Lizard	*Urosaurus ornatus*	Phrynosomatidae
25	Common Rock Lizard	*Lacerta armeniaca*	Lacertidae
26	Common Najas	*Naja naja*	Elapidae
27	Chameleon Species	*Chaemeleo africanus*	Chamaeleonidae

Table-9: List of Amphibians recorded in the study area

Amphibians			
Frogs			
S.No	**Common name**	**Zoological name**	**Status**
1	Common Indian Tree Frog	*Polypedates maculates*	Common
2	Indian bull frog	*Hoplobatrachus tigerinus*	Common
3	Reddish burrowing frog	*Zakerana rufescens*	Rare
4	Fungoid frog	*Indosylvirana malabarica*	Common
5	Sri Lankan Painted frog	*Kaloula taprobanica*	Rare
6	Ornate Narrow-mouthed frog	*Microhyla ornate*	Common
7	Marbled ramanella	*Ramanella mormorata*	Common
8	Common skittering frog	*Euphlyctis cyanophlyctis*	Common
9	Amboli bush frog	*Pseudophilautus amboli*	Common
10	Knob-handed Bush Frog	*Raorchestes tuberohumerus*	Common
11	Wrinkled zakerana	*Zakerana caperata*	Common
Toads			
1	Common Indian toad	*Duttaphrynus melanostictus*	Common

Table-10: List of Mammals recorded in the study area.

Mammals			
S.No	**Common name**	**Scientific name**	**Status**
1	Three-striped Palm squirrel	*Sciurus palmarum*	Very common
2	Malabar Giant-Squirrel	*Rutufa Indica*	Rare
3	Forest Small Mouse	*Talpa-curopaea*	Common
4	Common Hare	*Lepus timidus*	Very common
5	Common Wild Monkeys	*Macaca radiatus*	Rare
6	Common Langur	*Presbytis entellus*	Rare
7	Indian Wild Dog	*Cuon alpinus*	Rare
8	Indian Sambar	*Cervus unicolor*	Rare
9	Small Indian Mangoose	*Herpestes auropunctatus*	Common
10	Spotted Deer	*Axis axis*	Common
11	Wild Boar	*Sur scropa*	Common
12	Leopard	*Panthera pardus*	Rare
13	Bengal Tiger	*Panthera leo tigris*	Rare
14	Barking deer	*Muntiacus muntjak*	Common

CONCLUSION

Kuvempu University campus is located near Bhadra Wildlife Sanctuary which supports rich floral and faunal diversity. During this study, the results reveal that *Terminalia paniculata* Roth, *Xylia xylocarpa* (Roxb.) Taub, *Wrightia tinctoria* R.Br are the dominant tree species. On the other hand *Stachytarphyta indica*(L.). Vahl, *Chromolaena odorata* (L.) R.M.King & H.Rob.both abundantly distributed in the ground layer along with pre-dominant *Lantana camara* var. *aculeata* (L.) Moldenke. Along with canopy, shrubs also shows high abundance and it is supporting good number of amphibian diversity in the campus. Re-generation of *Santalum album* L is abundant in the study area. Further, Insect population recorded higher during rainy season compared to summer season. Interestingly 49 species of birds were documented in the study area which includes Amur falcon (*Falco amurensis)*, a migratory bird species from Siberia noticed in the month of February 2017.

Kuvempu University campus is attached with reserved forest having rich floral diversity supporting faunal diversity makes a biodiversity rich area and promotes Research in the related fields.

REFERENCES

[1] Shamin jairajpuri M., 1956. Biological Diversity and Environment, CBS Publishers and Distributors, New Delhi. ISBN: 8123904436.

[2] Chandri A.B., 1993. Forest plants of Eastern India, S.B. Nangia for Ashish publishing house, New Delhi.

[3] Wootton, A., 1984. Insects of the world, Blandford Publishers, Pune. ISBN: 0816052107.

[4] Har Darshan Kumar, 1999. Biodiversity and Sustainable conservation, Oxford and IBH publishing co, Pvt. Ltd-New Delhi.

[5] Madhav Gadgil., 1996. Documenting diversity: An experiment. Current Science, 70, pp. 36-44

[6] Ayyappan N. and N. Parthasarathy., 1999. Biodiversity inventory of trees in a large-scale permanent plot of tropical evergreen forest at Varagalaiar, Anamalais, Western Ghats, India. Biodiversity and Conservation, 8, pp. 1533–1554.

[7] Pande, P.K., Negi, J.D.S, Sharma, S.C., 2000. Plant species diversity, composition, gradient analysis and regeneration behaviour of some tree species in a moist temperate western Himalayan Forest ecosystem. Indian For, 128, pp. 869-886.

[8] Sharma, N., Kala, C.P. 2016. Utilization pattern, population density and supply chain of *Rhododendron Arboreum* and *Rhododendron campanulatum* in the Dhauladhar Mountain Range of Himachal Pradesh, India. Applied ecology and Environmental Science, 4, pp. 102-107.

[9] Volga V. R., M. K. Ratheesh Narayanan, N. Anil Kumar, 2013. Endemic trees of Western Ghats–a check list from wayanad district, Kerala, India. IJPAES, 3, pp. 197-202.

[10] Gamble, J.S., 1994. Flora of the presidency of Madras, 1-10. Bishen Singh Mahendra Pal Singh, Dehradun

[11] Rick I., 1996. Insects the practical guide to Entomology, Greenwich edition, London.

[12] Robert N. Coulson, and John., 1984. "Forest entomology, Ecology and Management, Witter John Willy sons Publications, New York.

[13] Salim Ali and S. Dillon Ripley., 1896. Handbook of the Birds of India and Pakistan Vol. 10, Oxford University Press, New Delhi.

[14] Hoevan J.V.,1992. Handbook of Zoology, Akashdeep Publishing house, New Delhi.

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