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A floristic Survey of Trees and Shrubs in Digras City District Yavatmal, Maharashtra

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ABSTRACT

The present survey deals with the floristic diversity in Digras City with reference to the perennial angiosperms such as trees and shrubs. The multiple ecosystem services are provided by the green urban spaces in cities. The biodiversity of city is important as it is vital that native and endemic species of flora are conserved. The Present study documents a total of 127 species representing 40 families trees and shrubs. Among these trees were dominant having 82 species followed by shrubs having 45 species.

Keywords: Perennials, floristic diversity, conservation, Green space.

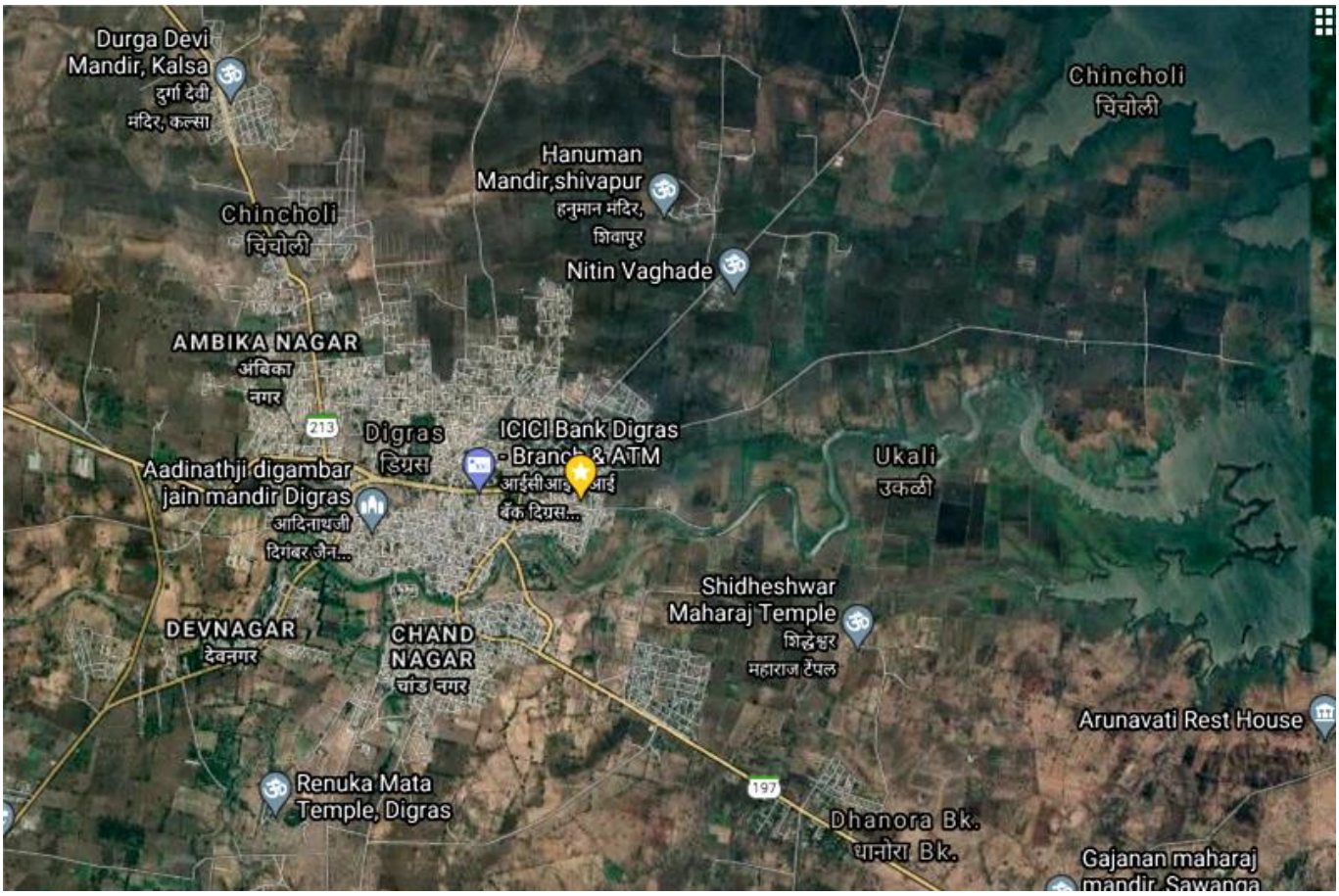
I. INTRODUCTION

India appears to be a favored child of nature, a land where most varied types of plants are to be found[8]. The conservation and sustainable utilization of natural resources for the future there is need of Biodiversity assessment which is the first and most fundamental step. Floristic diversity refers to the variety and variability of plants in given region.

To understand the present diversity status and conservation of biodiversity floristic study and diversity assessments are necessary. Floristic explorations and taxonomic studies can provide efficient and convenient information about the nomenclature, distribution, ecology, utility of various plant species, and thus about an ecosystem[2]. Floristically, cities have been observed to be richer than adjoining areas owing to high habitat heterogeneity as well as the presence of exotic species[1]. In cities, urban green spaces are of great importance because of the multiple ecosystem services they provide and may exist in the form of domestic, public or botanical gardens, unused fields, woodlands, campuses of educational institutes or urban forests/ wildscapes[5]. Therefore an attempt has been made to study the plant species present in the Digras city. The present survey deals with the floristic diversity of Digras with reference to the perennial angiosperms such as trees and shrubs. Trees are an important part of every community. Small height woody plants are called as shrubs. Shrubs are also the important component of plant community which forms background or understory canopy.

II. STUDY AREA

Yavatmal is one of the administrative headquarter in western Vidarbha region. Digras is a tehsil in Yavatmal district situated in between 20° 36′ 0″ N and 77° 25′ 48″ E. Digras city is Surrounded by green urban spaces like arunavati damp ecosystem , Sacred grove around Bhavani Tekdi Mandir, Farmlands hedges and dense forest areas like phetri and singad forest.



Map of Digras city and green spaces around city (Source: Google Map)

The study area has well demarcated four seasons as a hot summer, heavily raining monsoon, a brief autumn and a mild winter. The area has sub tropical climatic conditions with ample rainfall in the monsoon resulting in a rich diversity of vascular plants.

III. MATERIALS AND METHODS

The present floristic exploration began during rainy season in July 2020 till summer season of August 2021. The present investigation was divided into two sections.

a) Primary data- The preliminary data was obtained from extensive and intensive field surveys was done in morning and evening hours twice a week. During every visit, as many specimens as possible were collected and brought to laboratory for observation. Plant specimens were identified with help of standard regional floras (Flora of Maharashtra State, Singh et al[7], Flora of Yavatmal district, Karthikeyan S.[8], Flora of Kolhapur district, Yadav and Sardesai[9]) Cultivated and Ornamental garden exotics were confirmed from online database of Indian biodiversity portal, Flowers of India and also from experts. After identification plant specimens were pressed with standard protocols and mounted on standard herbarium sheets and labeled and preserved at the

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b) Secondary data- Literature surveys were carried out and publications those mentioned floristic diversity were extracted and cited. A comprehensive checklist was drafted from uniting all data from field notebooks and observations studied during exploration. Final list of about 104 species of trees and shrubs was compiled.

IV. RESULTS AND DISCUSSION

The Present study documents a total of 127 species representing 40 families of angiosperm perennials trees and shrubs are arranged as per Bentham and Hooker's system of classification (Table 1). Out of these 40 families of angiosperm perennials 38 families are of dicotyledonous and 2 are of monocotyledons. Dicotyledonous perennials are dominant with 95 % of total species while remaining 5% are of monocotyledonous perennials. The Perennial plants recorded in study area were broadly divided into into trees and shrubs. The higher percentage of trees (64%) in study area can be attributed to edaphic and climatic conditions and also due to plantation in city. The dominant tree species are *Acasia leucophloea, Acasia nilotica, Cassia siamea, Prosopis juliflora, Albizia lebbeck, Albizia procera, Alstonia Scholaris, Leucaena latisiliqua, Dalbergia sissoo.* Mimosaceae is the dominant tree family and Apocynaceae is the dominant shrub family in study area. Some Parts of city has monotonous plantation which cause biodiversity deterrence also there are prominent number of invasive alien species of trees and shrubs which are threat to native ecosystem.

Table 1: Enumeration of Trees and Shrubs according to Bentham and Hooker's system of classification					
Sr.No	**Families**	**Plant Species**	**Local Name**	**Habit**	**Flowering and Fruiting period**
1	Annonaceae	*Annona reticulata*	Ramphal	Shrub	May-Oct.
		Annona squamosa	Sitaphal	Shrub	May-Oct.
		Polyalthia longifolia	Ashok	Tree	May-June
2	Capparaceae	*Capparis grandis*	Pachonda	Tree	All year
3	Bombacaceae	*Bombax ceiba*	Katesawari	Tree	Feb.-Apr.
		Ceiba pentandra	Samali	Tree	Jan.-Mar.
4	Malvaceae	*Hibiscus rosa-sinensis*	Jaswand	Shrub	throughout
		Thespesia populnea	Indian Tulip	Tree	throughout
5	Sterculiaceae	*Sterculia foetida*	Jangali-badam	Tree	Mar.-Nov.
		Sterculia urens	Karai,Karu	Tree	Apr.-May
6	Tiliaceae	*Grewia tiliifolia*	Dhaman	Tree	Apr.-Sep
7	Malpighiaceae	*Galphimia gracilis*	Rain of gold	Shrub	Nov.-June
		Aegle marmelos	Bel	Tree	June-Sept
		Citrus aurantifolia	Limbu	Tree	May-Sep
		Citrus aurantium	Santra	Tree	Jan-Mar
		Citrus sinensis	Mosambi	Tree	May-Sep
		Limonia acidissima	Kawath	Tree	Mar-Sep
8	Rutaceae	*Murraya koenigii*	Kari-Patta	Shrub	Feb.-June
		Murraya paniculata	Kunti	Shrub	June-Mar.
9	Simaroubiaceae	*Ailanthes excelsa*	Maharuk,Ghodlimb	Tree	Jan.-Mar.
10	Meliaceae	*Azadirachta indica*	Kaduneem	Tree	Feb.-May
		Melia azedarach	Bakan nimb	Tree	Feb-May
11	Rhamnaceae	*Ziziphus mauritiana*	Bor,Ber	Tree	Apr.-Oct.
		Ziziphus oenoplia	Yeruni	Shrub	Aug.-Nov.
12	Sapindaceae	*Sapindus emarginatus*	Ritha	Tree	Oct.-Feb.
13	Anacardaceae	*Mangifera indica*	Amba, Aam	Tree	Jan.-May
		Semicarpus anacardium	Bibba	Tree	Oct-Feb
14	Moringaceae	*Moringa oleifera*	Shevga	Tree	Jan.-May
15	Mimosaceae	*Acasia auriculiformis*	Australian Babhul	Tree	Aug-Oct
		Acasia catechu	Khair	Tree	Jun.-Dec.
		Acasia leucophloea	Hivar	Tree	Aug.-Nov.
		Acasia nilotica	Babul	Tree	Jan.-Apr.
		Albizia lebbeck	Shirish	Tree	Mar.-Aug.
		Albizia procera	Pandharasiris	Tree	May.-Sep.
		Calliandra haematocephala	Red powderpuff	Shrub	Nov.-Feb.
		Dichrostachys cinera	Sagunkati	Shrub	Sep-Dec
		Leucaena latisiliqua	Su-Babhul	Tree	Oct.-Jan

		Parkia biglandulosa	Chenduphul,Gongstick tree	Tree	Feb.-Apr.
		Pithocellobium dulce	Vilayati chinch	Tree	Jan.-June
		Prosopis juliflora	Bangali babhul	Tree	Apr.-Oct.
		Prosopis cineraria	Shami	Tree	Dec-Apr
		Samanea saman	Rain tree	Tree	May.-Sep.
16	Caesalpinaceae	*Bauhinia racemosa*	Apta	Tree	Apr.-July
		Bauhinia Variegata	Kanchan	Tree	March-June
		Caesalpinia pulcherrima	Sankasur	Tree	Apr-July
		Cassia fistula	Bahawa	Tree	Mar.-July
		Cassia Javanica	Java Cassia	Tree	May.-Sep.
		Cassia siamea	Siamese senna	Tree	Sep.-Jan.
		Delonix regia	Gulmohar	Tree	Apr.-June
		Hardwickia binata	Anjan	Tree	July-Aug.
		Peltophorum pterocarpum	Peelagulmohar	Tree	Aug.-Dec.
		Tamarindus indica	Chinch	Tree	May-July
17	Fabaceae	*Butea monosperma*	Palas	Tree	Feb.-Apr.
		Cajanus cajan	Tur	Shrub	Oct.-Feb.
		Dalbergia latifolia	Pahari sheesham	Tree	Sep.-Feb.
		Dalbergia sissoo	Sheesham	Tree	Mar.-Feb.
		Erythrina suberosa	Pangara	Tree	Feb.-Apr.
		Gliricidia sepium	Mexican lilac	Tree	Feb.-June
		Pongamia pinnata	Karanj	Tree	Feb.-May
		Sesbania grandiflora	Heti	Tree	Nov.-Mar.
18	Combretaceae	*Terminalia arjuna*	Arjun	Tree	Apr.-Oct.
		Terminalia bellirica	Behada	Tree	Apr-Oct
		Terminalia catapa	Deshibadam	Tree	Apr-Oct
19	Myrtaceae	*Callistemon citrinus*	Bottle brush	Tree	Oct.-Feb.
		Eucalyptus globules	Nilgiri	Tree	Dec
		Psidium guajava	Jamb	Trees	Oct-Mar
		Syzygium cumini	Jambhul	Tree	Apr.-July
20	Lythraceae	*Lagerstroemia speciosa*	Chota bondara	Shrub	Mar.-May
		Woodfordia fruticosa	Dhayti	Shrub	Jan.-Apr.
21	Carricaceae	*Carrica papya*	Papai	Tree	Sep.-Jan.
22	Araliaceae	*Polyscias crispatum*	Aralia	Shrub	Not Seen
		Polyscias scutellaria	Plum aralia	Shrub	Not Seen
23	Rubiaceae	*Anthocephalus cadamba*	Kadamba	Tree	Dec.-Mar.
		Gardenia resinifera	Dikemali	Shrub	Mar.-Aug.
		Hamelia patens	Firebush,Muna	Shrub	May-Oct.
		Ixora coccinea	Lokhandi	Shrub	Throughout

		Mitragyna parviflora	Karam	Tree	May-Sep.
24	Sapotaceae	*Manilkara zapota*	Chiku	Tree	Mar.-June
		Mimusops elengi	bakul	Tree	Feb-June
25	Ebenaceae	*Diospryros melanoxylon*	Tembhurni	Tree	Apr-May
26	Oleaceae	*Jasminum officinale*	Chameli	Shrub	throughout
27	Nyctanthaceae	*Nyctanthus arbor-tristis*	Parijatak	Shrub	June-Dec.
28	Apocynaceae	*Alstonia scholaris*	Saptaparni	Tree	Dec.-Feb.
		Carissa carandus	Karonda	Shrub	Feb-July
		Nerium indicum	Kanher	Shrub	Throughout
		Plumeria rubra	Chapha	Tree	Throughout
		Rauvolfia tetraphylla	Barachandrika,Milkbush	Shrub	Throughout
		Tabernamontana divaricata	Swastik,Tagar	Shrub	Throughout
		Thevetia peruviana	Pivala Kanher	Shrub	Throughout
		Wrightia tinctoria	Kalakuda	Tree	Mar-Dec
29	Ascelpiadaceae	*Calotropis gigantean*	Rui	Shrub	June-Mar.
		Calotropis procera	Rui	Shrub	Dec.-Mar.
30	Ehretiaceae	*Cordia dichotoma*	Bhokar	Tree	Mar-May
31	Convolvulaceae	*Ipomoea fistulosa*	Besharam	Shrub	Throughout
32	Bignoniaceae	*Millingtonia hortensis*	Akashneem	Tree	Oct.-Dec.
		Spathodea campanulata	African tulip	Tree	Dec.-Apr.
		Tecoma stans	Ghantiful	Shrub	Sep.-Feb.
33	Acanthaceae	*Adhatoda zeylanica*	Adulsa	Shrub	Aug.-Dec.
34	Verbenaceae	*Clerodendrum infortunatum*	Bhandira	Shrub	March-April
		Clerodendrum chinense	Chinese Glory Bower	Shrub	Throughout
		Duranta erecta	Skyflower	Shrub	Throughout
		Gmelina arborea	Shivan	Tree	Feb-May
		Lantana camara	Ghaneri,Tantani	Shrub	Throughout
		Lantana montevidensis	Raimuniya	Shrub	Throughout
		Tectona grandis	Sagwan	Tree	June-Dec.
		Vitex negundo	Nirgudi	Shrub	Throughout
35	Euphorbiaceae	*Acalypha wilkesiana*	Copperleaf	Shrub	Jan.-July
		Emblica officinalis	Awla	Tree	Feb.-Apr.
		Euphorbia neriifolia	Mingut	Tree	Not Seen
		Euphorbia cotinifolia	Red Spurge	Shrub	May-Jan
		Jatropha podagrica	Australian	Herb	Oct.-Dec
		Jatropha Integerrima	Peregrina	Shrub	Throughout
		Ricinus communis	Erand	Shrub	Throughout
36	Piperaceae	*Piper peepuloides*	Wild Pepper	Shrub	Apr.-Aug.
37	Moraceae	*Ficus benghalensis*	Wad	Tree	Apr.-June

		Ficus benjamina	Nandaruk,Weepingfig	Tree	Not Seen
		Ficus carica	Anjeer	Tree	Apr.-Aug.
		Ficus hispida	Auadumber	Tree	Feb.-July
		Ficus racemosa	Umbar	Tree	Feb.-June
		Ficus religiosa	Pimpal	Tree	Apr.-Aug.
		Morus alba	Shahtoot	Shrub	Apr.-Aug.
38	Casuarinaceae	*Casuarina equisetifolia*		Tree	May-Jun
39	Agavaceae	*Cordyline stricta*	Ti Plant	Shrub	Apr.-May
		Nolina recurvata	Ponytailpalm, Elephan's foot	Shrub	Not Seen
		Chrysalidocarpus lutescens	Areca palm	Shrub	Not Seen
40	Arecaceae	*Phoenix sylvestris*	Kharik, Wilddatepalm	Tree	Jan.-May
		Roystonea regia	Royal palm	Tree	Sep.-Mar

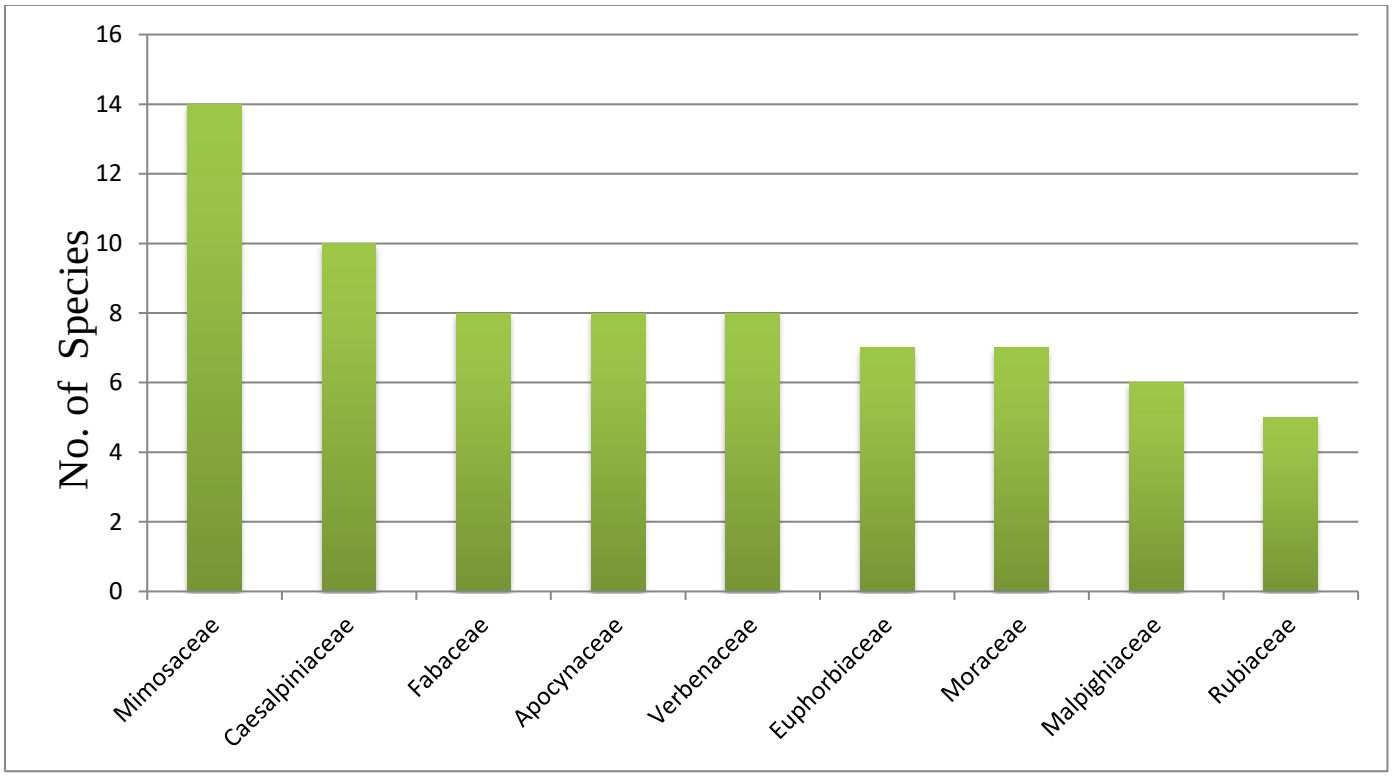

Fig.1: Plant Families with higher number of trees and shrubs in Study Area.

V. CONCLUSION

The survey of Trees and Shrubs of Digras City helps in inventorization of diversity which contribute towards a conservation task. The biodiversity of city is important as it is vital that native and endemic species of flora are conserved..The Present study reveal that the city is rich in native as well as exotic flora but the diversity among the species are less due to some areas covered under monotypic plantation of *Dalbergia sissoo, Polyalthia longifolia* and *Cassia siamea* and due to invasion of non native species. Although some undisturbed areas in city

has wild diversity of trees, shrubs and some climbers. Due to construction at various places some plants are under threat.

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