Phytosociological Studies on the Vegetation of Sapgaon Forest of Nashik District (Maharashtra)

Jadhav Jagdish Tukaram,

Department of Botany,
M. S.G. College, Malegaon, Nashik, India.

ABSTRACT

The account of the quantitative analysis of the Phytosociology of Sapgaon forest near Tryambakeshwar forest division based on frequency (%),density and abundance data is given for 4 localities and the forest as a whole , the vegetation of the forests is of a dry deciduous type with thorny species having a good frequency percentage at some places. The dominant communities are variable in different localities but it is Acacia - Carissa –Eucalyptus – Bambusa –Tectona – Mangifera for Sapgaon forest as a whole. A study of frequency classes shows that the vegetation is heterogeneous and homogeneous for all localities and the forest as a whole. The variation of frequency classes in different localities may be due to I- biotic interference and II- occurrence of numerous sporadic or accidental species.This is some what due to deforestration .Many of the part of forest is under the social forestry. So homogeneous type of vegetationis explored during investigation.

Keywords: Phytosociology, frequency, vegetation and frequency data.

INTRODUCTION:

Phytosociology deals with the qualitative study of the structure of the vegetation with an emphasis on quantitative relationship of a few species which are judged to be dominant on the belief that these largely control the community and thereby the occurrence of a large number of rare species . There are detailed accounts on the Phytosociology of Chhotaudepur forest (1979), Panchmahals (1980) and Dang forest (Gujarat -1980), Talegaon forests (Nashik District - 2016). A similar investigation is carried out in Sapgaon forests with a view to study the communities in different localities and to analyse them objectively with reference to frequency (%), density and abundance and to note vareations if any in permanent vegetation

MATERIALES AND METHODS:

55 quadrats of 10 m x 10 m are laid down in different directions in each locality. The density , abundance, frequency (%) and heterogeneity of vegetation are determined following the formulae given by Raunkiaer (1934),only the frequency is tabulated in Table I for each species in a locality to reduce the size of the table, without affecting the merits of our observations . The communities are also named after the species having higher percentage of frequency (Table II). When two species have an equal frequency percentage , abundance is also taken into consideration .The species are divided into five frequency classes Raunkiaer, 1934): Class A 1-20% ; Class B 21-40% ; Class C 41-60% ; Class D 61-80 % ; Class E 81-100 % .

OBSERVATIONS:

From the Tables I and II it is seen that though *Acacia - Carissa –Eucalyptus – Bambusa –Tectona- Mangifera* form a dominant community for the whole Sapgaon forest . It is so for different localities , where the dominant communities differ even among various localities (Stand-3). *Carissa –Acacia* are the members of the dominant community in most of the localites . *Acacia* has the highest frequency at Stand- 1,2 and 4 , but it has slightly less frequency with *Carissa and Bambusa* in same stand- 4 only . At other places it is *Tectona* at stand –1.
From Table II , it will be also seen that , for Sapgaon forest area as a whole , frequency classes E and D

collectively make up 6.24 % and frequency classes B and C 18.75 % of the total frequency . The preponderance of frequency classe A is much higher (75%). The vegetation of the forest as a whole is heterogeneous and homogeneous by Raunkiaer (1934). Frequency class E is absent in stands 3.The class A have higher frequency percentage than other classes in all localities. The absence of class A and E suggests a much degree of disturbance in vegetation.

DISCUSSION:

The values of frequency classes B,D and E in different localities are lower and classes A and C higher than those of Raunkiaer (1934) frequency classes for homogeneous vegetation . However , these values for classes A and C are much higher and of other classes much lower than those of Raunkiaer (1934) frequency classes for the Sapgaon forest showing that the vegetation of the whole forest is weakly heterogeneous .
Probably the better representation of class A and E in some localities indicates that the vegetation is still not much disturbed and is more or less uniform in nature. This is clearly seen from the 100%,93% and 100 % frequencies of first three dominant species at stand 1,3 and 4 .The absence of class A and E at Stand- 3 and 4 suggests some disturbance in vegetation due to factors like fire and anthropogenic conditions (Misra, 1974).

Table I : Showing the Frquency (%) of species represented in quadrats in different forest localities in Talegaon and mean frequency (%) of Talegaon forest as a whole.The species are arranged in order of higher frequency for the Talegaon forest.

Sr.No	Species	Localities				Ave Frequency
		1	2	3	4	
1	Acacia auriculiformis	100	93.33	46.66	100	85
2	Carissa congesta	73.33	86.66	20	90	67.50
3	Eucalyptus hybrida	0	86.66	60	80	56.66
4	Bambusa arundinacea	46.66	26.66	53.33	90	54.16
5	Tectona grandis	86.66	46.66	33.33	50	54.16
6	Mangifera indica	40	20	60	60	45
7	Woodfordia fruticosa	20	80	46.66	0	36.66
8	Syzygium cumini	6.66	13.33	33.33	70	30.83
9	Caseurina equisetifolia	0	0	80	0	20
10	Casearia graveolens	0	66.66	0	0	16.66
11	Heterophragma quadriloculare	40	26.66	0	0	16.66
12	Terminalia crenulata	40	20	0	0	15
13	Gmelina arborea	26.66	0	26.66	0	13.33
14	Dalbergia sissoo	40	0	11.33	0	12.83
15	Ficus recemosa	0	0	6.66	30	9.16
16	Anacardium occidentale	0	33.33	0	0	8.33
17	Erythrina subarosa	0	33.33	0	0	8.33
18	Acacia chundra	13.33	13.33	0	0	6.66
19	Grewia tinax	13.33	13.33	0	0	6.66
20	Acacia arebica	20	0	0	0	5
21	Bauhinia racemosa	0	20	0	0	5
22	Caesalpinia decapitala	20	0	0	0	5
23	Madhuca indica	0	20	0	0	5
24	Ficus benghalensis	0	13.33	0	0	3.33
25	Leucania glauca	13.33	0	0	0	3.33
26	Pavetta indica	13.33	0	0	0	3.33
27	Phoenix sylvestris	0	13.33	0	0	3.33
28	Tamarindus indica	13.33	0	0	0	3.33
29	Vitex negundo	0	13.33	0	0	3.33
30	Ziziphus rugosa	0	13.33	0	0	3.33
31	Albizia lebbeck	0	0	6.66	0	1.66
32	Mimusops elengi	0	0	6.66	0	1.66

Table II: Showing communities, frequency classes and digree of heterogeneity in different localities in Talegaon forest

Sr. No	Localities	Communities	Frequency Class					Degree of Heterogeneity
	Sapgaon		A	B	C	D	E	
1	Stand-1	*Acacia – Tectona-Carissa Bambusa*	28.12	15.62	3.12	3.12	6.25	0.5
2	Stand-2	*Acacia – Carissa-Eucalyptus-Woodfordia*	34.37	12.5	3.12	6.25	9.37	1.03
3	Stand-3	*Caseurina-Eucalyptus-Mangifera- Bambusa*	15.62	9.37	15.62	3.12	00	0.12
4	Stand-4	*Acacia – Carissa-Bambusa- Eucalyptus*	00	3.12	6.25	6.25	9.37	1.67
5	Whole Sapgaon forest		75	6.25	12.5	3.12	3.12	0.33
6	Raunkiaer's frequency classes		53	14	9	8	16	1.05

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