

## Phytosociological Studies on the Vegetation of Manudevi, Vaijapur and Pal forest areas in Jalgaon district – Maturity Index.

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**ABSTRACT:** To study the maturity of the plant communities in the forest areas Pichi-Sermolli (1948) suggested the method of Maturity Index based on the frequency percentage of all species in the stands of a community. It provides information on the maturity of the forest community and species dominant therein. The study reveals that the degree of maturity is more or less same in the forest ranges of Pal and Manudevi, however, in Vaijapur forests it is comparatively less.

**Key Words:** Phytosociology, Maturity Index, Manudevi, Vaijapur and Pal.

### Introduction:

Various phytosociological techniques are employed to study the structure of forest communities and their relationship ( Raunkiaer,1934; Pichi-Sermolli,1948; Oosting 1958; Philips 1958; Whittaker,1973. This type of work initiated in Gujarat by Shah et. al. 1079; 1980a; 1080b. An attempt similar to this type of work also made by Jadhav & yadav,2004.

The principle of maturity of community is the long lasted accepted notion that higher the frequency percent of each species and smaller the number of sporadic species, the more mature will be the community.

### Study area:

The study area covers the areas of Satpuda region of Jalgaon district situated between 20-17' and 21-2' North latitude and 74-47' and 76-28' East longitude. Satpuda mountain ranges forms the northern boundary. Ajanta and Satmala ranges forms roughly the southern boundary. On northern boundary along with Madhya Pradesh shares the eastern Buldhana, southern Aurangabad and Nashik district and western Dhulia district. The forest areas mainly on north of Tapi river covers the entire Satpuda range

The forest areas selected in the range of Pal are Andharmali, Nimdya and Tidya. The areas of Chopda range are Vaijapur, Marathe, Krishnapur and Satrasen and in Yawal forest ranges are Manudevi, Baghjiri and waghjiri.

### Methodology:

The forest areas are selected for the study are based on variation in the forest composition and geographical conditions. Quadrats of 10x10 mts wide are laid down randomly covering almost all the woody species. Nearly 100 quadrats are laid down covering 4300 sqm. area.

Frequencies of species distributed are calculated using the Raunkiaer's (1934) formula.

Maturity index is calculated by adding the frequency percentage of all species in a stand and dividing this sum by the total number of species in the stand using the method suggested by Pichi- Sermolli (1048).

### Observation:

**Table 1: Showing the stands and their Maturity Index (Yawal –W forest range)**

S N	Stands/localities	Maturity Index
1	Stand-1 Manudevi	46.47
2	Stand-2 Baghjiri	64.39
3	Stand 3 Waghjiri	78.14
Av, M.I of Yawal forest range		66.06

Maturity index provides information about the status of maturity of communities of the forest. It also gives an over all view of the dominant species.

Table 1 shows that the highest maturity of community is at Waghjiri forest (78.14 M.I.) followed by Baghjiri (64.39 M.I) and the low or moderately low is at Manudevi (46.47 M I).The Av.. M I for whole of the Yawal forest range is 66.06. .

**Table 2: Showing the stands and their Maturity Index (Chopda-W forest range).**

S N	Stands/localities	Maturity Index
1	Stand 1 Vaijapur	36.84
2	Stand 2 Marathe	42.18
3	Stand 3 Krishnapur	47.28
4	Stand 4 Sarsen	56.37
The Av. M I for Chopda (W) forest range		45.71

From the Table 2 it can be observed that the forest community at stand Sarsen is the highest mature (56.37 M I) followed by the community at Krishnapur (47.28 M I).

Forest community at Marathe forest area shows the less maturity index (42.18 MI). However, the lowest maturity index is observed at Vaijapur forests (36.84 M I). This can be attributed that Manudevi is the tourist place and therefore, there is much biotic and anthropogenic interferences. The Av .M I for chopda west is 45.71 M I.

**Table 3: Showing the stands and their Maturity Index at the Pal forest range.**

S N	Stands/localities	Maturity Index
1	Stand 1, Andharmali	52.42
2	Stand 2. Nimdya	57.49
3	Stand 3. Tidya	47.64
The Av M. I. for Pal forest range		52.49

Pal is the reserve forest area however, due to its tourist attraction and wild life the area is under much disturbance.. The highest maturity index is observed at Nimdya (57.49 MI) followed by Andharmali (52.42 M I) and the lowest is at Tidya (47.64 M I).The Av M I for the Pal forest range as a whole is 52.49.

**Table 4: Showing the Av. M I of Yawal (w), Chopda (w) and Pal forest ranges**

S. N.	Stands/localities	Av. Maturity Index
1	Yawal (w) forest range	66.06
2	Chopda (w) forest range	45.71
3	Pal forest range	52.49

From the study it can be observed that the Av. M I for Yawal forest range is the highest (66.06 M I) followed by the moderate at Pal forest range (52.49 M I) and the lowest at Chopda forest range (45.71 M I).This can be attributed by the fact that there is much biotic influence and also the soil erosion a common phenomenon observed frequently.

### Discussion and Conclusion:

Maturity index is the common practice in forest restoration ecological studies to evaluate the vegetation disturbance of an area affected by environmental factors.It not only to provide the structure of forest communities but also helps to understand the relationship between the environmental factors and the plant communities.The edaphic factor such as soil characterstics, climatic factors such as temperatue,rainfall,humidity etc and the topographic factors such as mountains, plain areas play an important role in development of the vegetation.

The present study through some light in this regard. The study reveals that forest communities in Yawal forest range are better adapted as compared to the forests of Chopda and Pal. The forest is well protected at Yawal taluka on the other hand forests at Pal are considered to be the reserve forests however, there seems to be much disturbance to the forests.The plant communities are yet at successional stage.The poorest condition is observed at Chopda forests where the forests are thinning regularly.It is also observed that there is heavy illicit cutting of trees exploitation of natural forest.

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