

## VARIATION OF FLORA IN AHMEDNAGAR DISTRICT, MAHARASHTRA, INDIA

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### Abstract:

Ahmednagar district shows a great diversity of flora and fauna, Akole tehsil has the highest amount of vegetation whereas the rainfall is highest in this respect whereas Kopargaon Rahata and Shrampur tehsils have the least forest cover. Present paper is based on secondary data of Ahmednagar District. The District Geographical Area is 17048 (Sq.km) and forest area of the Ahmednagar District is 1994 square kilometers which is 11.70 percentages of the total geographical area of the Ahmednagar District. Natural resources area the bases of prosperity of any states under which the land, water, forest are included. The relief availability of water, soil, and climate are importance factors for development of natural vegetation. The maximum vegetation covered in Akole tehsil out of other tehsil in Ahmednagar District

**Key Words:** Resources, Vegetation, Forest, Ahmednagar, Natural and Human Resources, Wildlife Sanctuary (WLS), WLS and Maldhok WLS

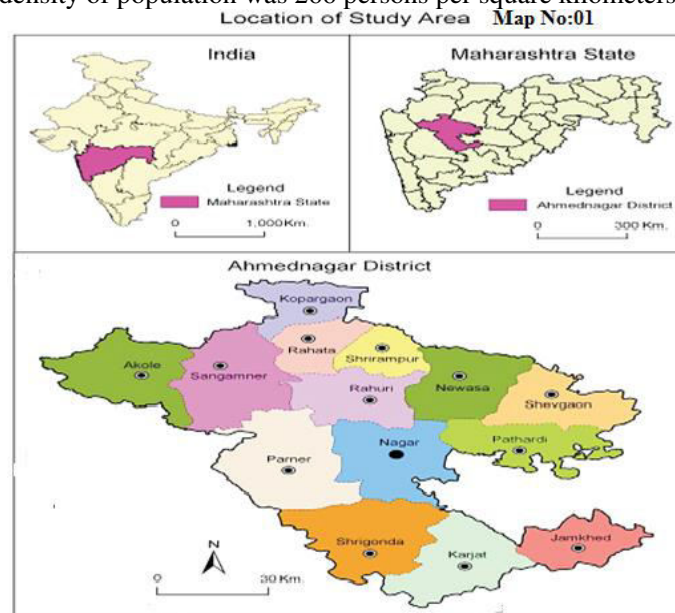
### Introduction:

Any resource wealth includes two resources namely natural resources and human resources. Natural resources mainly include plants, soil, precipitation, minerals etc. Plant distribution is influenced by various factors such as rainfall, temperature, and topography and soil type. The diversity of all these factors can be seen in Ahmednagar district due to the effect of these factors plant diversity can be seen in Ahmednagar district. A geographical area with the highest amount of vegetation has the highest geographical natural resources and also has the highest number or diversity of animal and bird species. And the amount of vegetation also maintains the ecological quality there. (Prithwish Roy2007) According to Zimmermann's The word resources does not refer to a thing or a substance but a function which a thing or a substance may perform or to operation in which it may take part namely the function or operation of attaining a given end such as satisfying a want. Other words the word resources is an abstraction reflecting human appraisal and relating to a function or operation. (Prithwish Roy2007) Forest are close association of plants. According to Allen and Sharp 'It is a community of trees and associated organisms covering a considerable area, utilizing air, water and minerals to attain maturity and to produce itself and capable of furnishing man and land with indispensable products and services. (Shejul Meena Eknath 2020; Shejul Meena Eknath et.al, 2020) Resources is two types first is natural resources and second human resources. Resources measuring is not easy task. Resources is two types natural and human resources. (Gadekar Deepak J 2015; Gadekar Deepak J 2016; Gadekar Deepak Janardhan 2018) Uma Gple et.al, (2018) forest are close formation of tree growing together at one place and one of the largest renewable natural resources. Rainfall is importance factors for vegetation distribution. (Gadekar Deepak Janardhan 2016; S.D Gulave 2020) forest is natural resources, the vegetation delineation using a Landsat-7 & 8 (OLI) ETM+ Data for resourceful vegetation mapping. A forest is a complex ecosystems which is mostly composed of trees and is frequently a closed covering. (Bisen D.K et al., 2013; Gadekar Deepak J 2018; Anil A Landge et.,al. 2020)Water is importance key of other natural resources. (Gadekar Deepak J 2019) the resources are unequal distribution because of affecting factors effected on resources e.g topography, climate, soil, water bodies. The forest distributions depend on the physical, geographical, climatic and ecological factors there are different types of forest e.g. evergreen forest and deciduous forest.

(Sonawane Vijay R. et.,al. 2020; Sonawane Vijay R. et, al.2020) soil as a resources and natural resources area the bases of prosperity of any stats under which the land, water, forest are includes. In Ahmednagar district there is a wide variation in the amount and variety of vegetation with Akole tehsil showing the highest amount of vegetation and other taluks showing the least amount of variety. All these factors have an impact on the birds and animals here, along with the human occupation and its impact. Therefore the main objective is to study the geographical distribution of the flora of Ahmednagar district. The said research papers have been done considering these objectives.

### Study Area:

The present study Ahmednagar district has been selected as a study area. It extends between  $18^{\circ} 20'$  and  $19^{\circ} 59'$  north latitudes and  $73^{\circ} 40'$  to  $75^{\circ} 43'$  east longitudes (Map.1) located in part in the upper Godavari basin. The district is very dense in shape and length of 200 km. a width of 210 km. This study region is divided into there are three physical divisions namely, first Sahyadri moutons ranges i.e. Kalsubai, Adula, Baleshwar and Harishchandragad, second Plateau third plains area. The Godavari, Bhima River is the main rivers in this district with the major tributaries are Paravara, Mula, Sina, Dhora, Kukdi ect. And the recharge (water available) of rivers is mainly depending on rainfall in western ghat. Ahmednagar district occupies 17,048 square km geographical area. The administratively there are divided into 14 tahsils. The average annual rainfalls is 578.8 mm. ( $22.79''$ ) and mean daily maximum temperatures is  $39^{\circ}\text{C}$  and mean daily minimum temperature is  $11.7^{\circ}\text{C}$ . In study region 71.10 percent area under cultivation area out of them 32.40 percent is irrigated and 67.60 percent rain fed or rain shadow area. According to 2011 census population is 45, 43,083 in which male and female are 2,348,802 and 2,194,281 correspondingly. The density of population was 266 persons per square kilometers.



**Objective:** The objective of this study is to demarcate the forest area and to analyses the classification of forest on the base of different types of vegetation.

### Database And Methodology:

The analysis based on secondary data collected from Ahmednagar district statistical website. The obtained data for forest has been converted in percentage values for better understanding and categorized into three zones are high, moderate and low. The used cartographic methods e.g bar graph etc. The data analyzed and presented in the form of table and maps with analysis is done with the help of SPSS software and for mapping purposes used Arc GIS10.3 version GIS software. The data is represented with the help of suitable classification groped of the forest area in first high forest area under grouped in more than 22 percentage covering forest area used this criteria second grouped less than 22-10 percentage is moderated forest area and low forest area having less than 10 percentage forest area in total geographical area. The forest area prepared in 2020 years this data collected Directorate of Economics and Statistics Ahmednagar district Planning Department, Government of Maharashtra, India.

### Result And Discussion:

Ahmednagar district has a wide variety of flora in Akole tehsil with green vegetation in Jamkhed and grassland in Karjat. We can see that the distribution of these plants is greatly affected by the high rainfall as Akola receives the highest rainfall above the average which leads to lush vegetation whereas other taluks have low or sparse vegetation due to the rain shadow region. Due to this, Akola tehsil has a high amount of teak plant and other taluks have a high amount of different plants like acacia, bor, lemon, mango, tamarind. However, the distribution of plants in Ahmednagar district has been studied in the following manner. Akole tehsil has the highest amount of vegetation due to its large mountainous areas and high rainfall. In short, precipitation and topography are the most important factors influencing vegetation distribution. topography result in rainfall, and impact of rainfall on distribution of vegetation. Climate is importance factors for influencing on resources. So the topography and rain fall in ahmednagar district are observed to have affected the distribution of vegetation. In which the maximum forest covering in found in the Akole Tehsil (27.2 percent) and second Rahuri (15.4 percent) with third number Parner (10.1 percent). The maximum vegetation covered in Akole tehsil out of other tehsil in Ahemdngar District. Protected Area are Kalsubai, Harishchandra Garh Wildlife Sanctuary (WLS). Then Parner (10.1perctage), Shrigonda(9.5 perctage), Karjat (8.8 perctage) in these tehsil moderate and low forest but importance Rehekuri WLS and Maldhok WLS (Part) it is found this area.

**Table no 01: Forest area in Hectares and percentage**

Name of Tehsils	Total Geographical area in Hectares	Forest area in Hectares	Forest area in percentages
Akole	150400	41698	27.7
Jamkhed	87524	3772	4.3
Karjat	149152	13068	8.8
Kopargaon	70613	0	0.0
Nagar	150272	13165	8.8
Nevasa	129204	1459	1.1
Parner	186792	18792	10.1
Pathardi	117784	6426	5.5
Rahata	68786	0	0.0
Rahuri	101685	15706	15.4
Sangamner	135780	1140	0.8
Shevgaon	108713	1157	1.1
Shrigonda	160481	15210	9.5
Shrirampur	50602	0	0.0
Total	1667788	131593	7.9

Sources: Directorate of Economics and Statistics Ahmednagar district 2020

**Table no 02: Level of Forest Area in %**

Sr.no	Index value in %	Level of Forest Area	Name of the Tehsils	Number of Tehsils
01	More than 22	High	Akole	01
02	22.1 to 10	Moderated	Parner, Rahuri	02
03	Less than 10	Low	Jamkhed, Karjat, Nagar, Nevasa, Pathardi, Sangamner, Shevgaon ,Shrigonda	08
04	0	None of the Forest Area	Kopargaon, Rahata, Shirampur	03

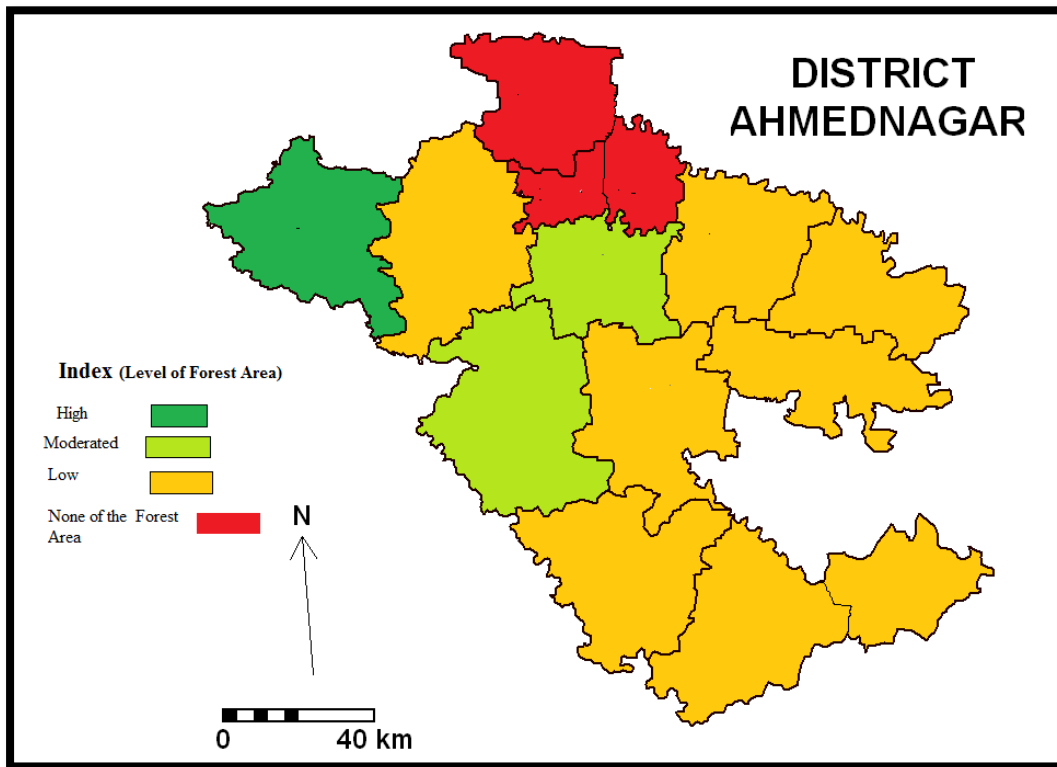
Sources: computed by Authors

The geographically, there are two types of tropical forest found in the district. In tropical monsoon region where rainfall is seasonal and a definite dry season exists this deciduous and semi evergreen forest are prevalent. It's also known as monsoon forest and same part covering grassland. These forest are used to protect the trees wood, land and soil conservation to maintain climatic condition. The

zone of high level of forest distribution comprises of one tehsil having more than 22 percent forest cover area those area is akole tehsil. This area maximum forest area because of average rainfall is 1058 mm and Kalsubai is a mountain in the Western Ghats, located in the Indian state of Maharashtra. Its summit situated at an elevation of 1646 metres is the highest point in Maharashtra. The mountain range lies within the Kalsubai Harishchandragad Wildlife Sanctuary.

Although temperature, soil type, rainfall, and topography are the most important factors affecting any vegetation type, Akole tehsil has the largest amount of flora and fauna. Whereas in Srirampur Kopergaon Shevgaon Jamkhed tehsil, the amount of plants and animals is low, the important reason is low rainfall and muddy land in these areas. In three tehsils namely Kopergaon Raha and Srirampur, the amount of vegetation or forested area is very small. The figures show that there is no forest cover in these areas, so there is no natural ease or feature.

**Map no 02: Distribution Pattern of Forest Resources in Ahemdagar District**



The zone of moderate level of forest distribution comprises of two tehsil namely Parner (10.1 percent), Rahuri (15.4 percent) and third zone is low (less than 10 percentage) of forest distribution tehsil is Jamkhed (4.3), Karjat (8.8), Nagar (8.8), Nevasa (1.1), Pathardi (5.5), Sangamner (0.8), Shevgaon (1.1), Shrigonda (9.5). The low forest area covering in these tehsil Jamkhed, Karjat, Pathardi, Shevgaon, Shrigonda because of drought prone area and effect of rainfall in this tehsil. Sangamner and Nagar tehsil low forest area because of two area goring urban area and Nagar is district place. The zone of none of the forest area tehsil are Kopergaon, Rahata, and Srirampur.

**Conclusion:**

Ahemdnagar District has 14 tehsil in total out of which is Kopergaon, Rahata, Shrirampur tehsil have zero forest coverage. The highest forest cover in Akole tehsil (27.7 percentages) thus Protected Area are Kalsubai, Harishchandra Garh Wildlife Sanctuary (WLS) and very good environment condition and minted air quality level. The low forest area covering in these tehsil are Jamkhed, Karjat, Pathardi, Shevgaon, Shrigonda because of drought prone area. It is topography and Climate (Rainfall) factors large affected on distribution of vegetation of any area. Rehekuri Wildlife Sanctuary and Maldhok WLS (Part) founded same part in Jamkhed, Karjat, Shevgaon, Shrigonda etc. The large part of forest area has been

depleted and degraded which is a serious concern regarding which very person should plant minimum five tree for forest conservation. Akole tehsil has the highest amount of vegetation whereas other tehsils tend to have very less vegetation or forest cover which means that Akole tehsil has high rainfall and mountainous area whereas other tehsils do not have this feature.

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