Journal of Advances and Scholarly Researches in Allied Education
Vol. 20, Issue No. 2, April-2023, ISSN 2230-7540

Classification of Morni Hills Forests Through Altitudinal Zones in Shivaliks of Haryana

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Abstract - This paper presents novel thought that identifies different forest types based on altitude and its related factors for the Morni Hills in the Shivaliks of the Panchkula District of Haryana. The Morni Hills have different zones related to broad geographical areas and changes in altitude and attitudinal distribution of forests. These are generally placed in three groups differentiated by altitude which are described as 1.Lower or Shivalik Chir Pine Forest 2.Northern dry mixed deciduous forest and 3.Dry deciduous scrub forest. It portrays local ecological conditions and distinctive forest character. Awareness of zonation also brings benefits for landscape values, nature conservation and ecosystem functions which possesses the potential to improve the economic conditions of the area.

Keywords - Forest Nature Forestry, Conservation.

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INTRODUCTION

Natural resources are gifts of bountiful nature Forests develop a major resource base for the global economy. Besides providing important products, they also play an important role in maintaining ecological balance. But in recent era, swift destruction of forests resources have been noted especially in developing countries. Large scale deforestation in India is a result of high demand for Non-Timber Forest Produce (NTFP's). The condition is more pitiable in hilly areas of Haryana.

Physical Setup of the Study Area

The Study area, i.e. Morni Hills, lies in Morni Sub - Tehsil of District Panchkula in Haryana. It falls under lower Shivaliks. The total study area is covered by Survey of India Topographical sheets Nos. 53F/2 and 53/B14 covering an area of 255Km^2 on a scale of 1:50,000. The study area extends from 76^{o}11' East longitude and 30^o 34' to 34^{o}45' North latitude. The area comprises of hills, open valleys, foot hills and two small lakes (Tals). The highest peak viz. Dharot Kahlog (1499m AMSL) lies on the northern ridge and Thandok (I246m AMSL) on the Southern ridge.

The study area is mainly drained by non-perennial streams. River Ghagghar is the only perennial river which borders the study area on its north-west margin. From to west. the drainage system comprises of Begna Nadi, Baliali Nadi, Dangri Nadi and the Ghagghar River. River system exhibits dendritic to sub-dendritic pattern and at Some places sub- parallel and radial too.

The study area comprises of tertiary rocks including limestone and sand stone, shale and boulder conglomerates. In the foothills region soils are mainly stony.

Natural vegetation mainly comprises of 'Northern Tropical Dry Deciduous Forests' and sub-tropical forests. Above 650m altitude sub-tropical forests viz. chir (Pinus roxiburgii) chall, khair, shingan etc. are found. At places, there are patches of barren land too, with no vegetatin.

The climate is characterized by very hot and dry summer and bracing cold season in winter. The average rainfall in the district is 985 1mm. The rainfall in the district generally increases from the South-West to North-East. The temperature starts increasing from March and reaches to the peak in months of May and June. The mean daily maximum temperature is about 41°C and daily minimum temperature about 26°C. The highest maximum temperature in the study area shoots up to 46°C in summer and falls sometimes below 0°C in winter.

Shivaliks lie between the Indo-Gangetic plains and the high mountain ranges of Himalayas. The Morni Hills in the Shivaliks of Haryana have diversified plant species. Shivaliks have fragile degraded mountain eco-system in India (J.R. Sharma et.ai 2005). Forests are associations of plants, predominantly trees. Originally forests covered approximately 40 percent of the land area, which too is under constant threat of destruction.

Vegetation, an important dynamic characteristic of the Earth's surface, is defined as a system of large

spontaneously growing plant population, growing in coherence.

OBJECTIVES

- To classify the forest types of Morni Hills and,
- To identify and analyze the vegetation on an altitude basis.

METHODOLOGY

Altitudinal classification of forests of Morni Hills is based on “A Revised Primary Survey of Forest Types of India (Champion and Seth, 1968)". Primary field survey was completed during 2014-16. Personal Interviews were conducted through questionnaire during primary survey.

REVIEW OF LITERATURE

The design of the present study has been formulated after careful study of literature namely Rout and Gupta (1989), Jain et al(2000), Kumar (2001), Forest Survey of India (2011), Haryana Forest Department (2011-2012, 2015-2016), Singh and Vashista (2014), Singh et al (2017), Balkrishna, A (2018).

RESULT AND DISCUSSION

Forest types observed during survey are as follows:

Lower or Shivalik Chir-Pine Forest 9/C1a (730 to 1499 mtr)

Chir pine forest spread on altitudes ranging from 730 to 1499 mtr. Important species found are Mallotus philippensis (Kamella), Rhus parviflora (Murti), Terminalia alata (Sain), Flacourtia indica (Kandel), Diopyros montana (Kaindu) etc. This type of forest is found in Bhoj Tipra, Bhoj Darara, Bhoj Kohti, Bhoj Koti, Bhoj Balag and Bhoj Jabial (Morni).

In Bhoj Tipra, a few Quercus leucotrichophora (Ban Oak) trees have been observed at an altitude of 1499m above mean sea level. (AMSL) with North Lat. 34^{o} 44’37" and East Long. 77°04'39". portraying sub-temperate climatic characteristic.

Northern Dry Mixed Deciduous forest 5B/C2 (400m-1000m)

This type of forest is found in all the 14 bhojs. Important species found are Acacia, catechu(Khair), Anogeissis latifolia(Chhal), Nyctanthes arbortristis(Harsingar). Sapium insigne(Sheler), Ehretia laevis (Chamror), Terminalia chebula(Harar), Emblica officinalis (Amla), Azadirachta indica(Neem), Dalbergia latifolia(Shisham), Terrninalia belerica (Bahera), Aegie mamelous(Bel), Ziziphus mauritiana(Ber), Bauhinia variegate (Kachnar), Acacia pinnata(Biswal/agla Bel), Holarhena antidysentrica (Kuraj) etc.

This type of forest occurs in moderate slopes of Shivaliks.

Dry Deciduous Scrub 5B/DS1

This type of forest is found chiefly in Bhoi Ponta, Bhoj Kudana, Bhoj Rajpura and partly in Bhoj Matour, Bhoj Tipra, Bhoj Palasara and Bhoj Balag. Main tree species found at present in this category of forests are Acacia Catechu (Khair), Acacia leucophloes (Reru), Prosopis julifora (Muskat), Ziziphus nummularia (Jhari Ber), Mitragyna parvifolia (Kaimb), Wendilandia heynei (Tilak), Anogeisus (latifolia (chhal), Caesaria elliptica (Chilla) etc. These species confirm the sub-tropical climatic characteristics.

Some patches of Bamboo Forests are also present, but-haven't developed enough so as to be termed to be in a good condition.

These forests are degraded due to heavy biotic pressure or various landscapes parameters of human disturbances etc.

CONCLUSION

Geologically, the. Shivaliks are the most recent but the most fragile due to boulder surface underneath. The Morni Hills is one of the most vital regions in the Shivaliks pertaining to medicinal wealth. The study indicates that Morni Hills is highly rich in bio-diversity and varied landscape Therefore, it is vital to employ conservation measures to safeguard these areas from further degradation and encroachment under tremendous pressure from the surrounding population and land grabbers.

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