

Study of Vegetation of Some Areas of Eastern Rajasthan

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Abstract

Rajasthan state shows a great variation in climate conditions comprising of extreme desert habitats to sub humid habitats. The eastern part itself shows variations in climatic conditions. The western part is a desert area. The vegetation cover also varies along with the climate conditions. The present study shows a wide range of variation in the vegetation of eastern Rajasthan ranging from desert vegetation to sub humid vegetation and also rich vegetation cover at the foot hills of Aravallis.

Keywords: Rajasthan, Desert, Climate Conditions, Vegetation.

Introduction

Rajasthan is situated in the north-western part of India between 23°3' and 30°12'N latitude and 69°30' and 78°17'E longitude. This state is considered as a desert state of India. Though only some part of Rajasthan comes in desert area which is chiefly the western part of the state from Pushkar and Nagaur areas to Jaisalmer comprising of the Thar Desert. The deserts comprise a peculiar and distinct habitat in aspects of climatic, edaphic and biotic conditions. Plants harbouring these areas have peculiar characteristics morphologically and physiologically. Present study envisages a wide variation in the vegetation cover of the eastern Rajasthan.

Objectives of Study

The aim of the present investigation is to study the vegetation cover of the eastern Rajasthan. As the vegetation of any area is a reflection of its climatic conditions, edaphic factors, water bodies present and various anthropological activities going on in that area and with the ongoing environmental changes there might be change in the vegetation pattern. The objective of the study is to access the changing vegetation pattern, studying about the new plants which have established themselves and also to find out about those plants which have disappeared in the course of time.

Material and Methods

The present study is chiefly concerned with the vegetation of three entirely different areas in aspects of climatic and soil conditions of the eastern Rajasthan. The study areas are Shekhawati area near to Jaipur division, Jaipur division itself and some areas of Ajmer district nearby to Jaipur and some areas of Pushkar a religious place near Ajmer. The Aravalli range, perhaps the oldest folded mountain range is a remarkable feature of Rajasthan. This range also comes in our study area. The vegetation of these three areas was studied by an ecological survey.

The climate of the study areas is of semi-arid type with extremes of temperature and low rainfall. The climate of Jaipur and Ajmer show a slight variation being somewhat moist and humid in comparison to Shekhawati and Pushkar areas.

Results and Discussion

A great variation in the plants harbouring the three study areas was vigilant.

The Shekhawati area is situated in the north-west of Aravalli ranges. The soil of this area is much sandy, brownish or yellow in colour with low humus content; the soil is rich in nitrates. This area is characterized by typical arid conditions, similar to the conditions prevalent in the western Rajasthan. The chief vegetation of this area comprise of *Leptadenia pyrotechnia*, *Calotropis procera*, *Crotalaria burhia*, *Euphorbia clarkeana*, *Borhavia diffusa*, *Aerva tomentosa*, *Mollugo cerviana*, *Ephedra foliata*, *Lantana camara* etc.

Some climbers of cucurbitaceae family are also very common. The ground vegetation comprises of *Achyranthus aspera*, *Peristrophecalyculata*, *Justicia sp.*, *Commelina sp.*, *Abutilon indicum* etc.

The Jaipur division near Ajmer is somewhat hilly tract and in the south, it consists of sandy plains. The dominant vegetation of Jaipur zone chiefly consists of *Capparis sp.*, *Gymnosporia sp.*, *Accacia sp.* At the hilly tracts *Accacia* and *Zizyphus sp.* are abundant. The other dominant vegetation harbouring Jaipur division is *Tephrosia purpurea*, *Crotolaria burhia*, *Leptadenia pyrotechnia*, *Euphorbia sp.*, *Justicia adhatoda*, *Tecoma undulata*, *Lantana camara*.

A slight change in vegetation cover is observed in winter season with plants like *Euphorbia hirta*, *Boerhavia diffusa*, *Sida rhombifolia*, *Mollugo cerviana* etc.

The investigation of vegetation of Ajmer region revealed that the sand dune areas of Pushkar largely comprise of ephemerals like *Euphorbia prostrata*, *Farsetia hamiitonii*, and *Mollugo cerviana*.

Some plants like *Calotropis procera*, *Leptadenia sp.* *Aerva tomentosa* function as sand binders. Small trees like *Accacia senegal*, *Maytenus*, *emarginata*, *Prosopis cineraria*, *Tecomellaundulata*, *Zizyphus sp.*, *Capparis decidua* are abundant in the sandy areas.

Majority of the hills in Ajmer are barren, but some of the rocky areas has the permanent vegetation of *Anogeissus pendula*, *Abutilon indica*, *Euphorbia caducifolia*, *Cordia gharaf*, *Boswellia serrata* and *Butea monosperma*. This is abundant in the areas joining Ajmer-Jaipur region. Herbaceous flora in rainy season is dominated by *Boerhavia diffusa*, *Indigofera cordifolia*, *Solanum indicum*, *Dicoma tomentosa*.

The study reveals that Eastern Rajasthan vegetation shows a wide array of plants. Plants also showed drastic variation in regard to different seasons. The study area has different ecological zones ranging from desert and scarce vegetation in Shekhawati and Pushkar region to rich plant cover in the Jaipur and nearby Ajmer division.

The vegetation cover seems to be disturbed by the various anthropological activities. The chief biotic activities prevalent in these areas are grazing animals, soil inhabiting organisms comprising of microorganisms insects, termites etc. These grazing animals and other organism inhabiting the soil cause a considerable damage to the vegetation. Human beings also by the process of deforestation for fuel requirement cause enormous loss in vegetation Agarwal T. (2017).

It was observed that the extent of growth of plants is determined by the climatic conditions prevailing there in the low moisture areas or we can say semidesert areas, there was scanty vegetation. Tree flora was also very less. Desert plants like *Zizyphus sp.*, *Accacia sp.* *Calotropis sp.* and *capparis sp.* were abundant. This area was characterized by very low annual rainfall and extremes of temperature.

The Jaipur area and the adjacent Ajmer area is one of the extensive tract of Eastern Rajasthan

which showed a rich vegetation cover. This area had rich vegetation as maximum area is under the foot hills of Aravallis. The vegetation is a mixed type comprising of desert plants *Accacia sp.* and *Capparis sp.* and also some plants of humid areas *Tephrosia purpurea*, *Justicia adhatoda*, *Tecoma sp.*, *Crotolaria burhia* etc. The rocky habitat bears the permanent vegetation of *Anogeissus pendula*, *Abutilon indicus*, *Boswellia serrata* etc. *Butea monosperma* is also seen in very large numbers along the route joining Ajmer to Jaipur. Shrubs like *Lantana camara* are also dominant in the foothills.

Conclusion

The vegetation of Eastern Rajasthan is quite adaptive as the plants here have the ability to thrive in hard climate conditions as well as humid conditions which prevailed here. Sometimes some plant species like *Boswellia serrata*, *Holoptelea integrifolia* are also quite prevalent here which are the chief vegetation cover of the Mount Abu area having different climatic conditions in comparison to the study area. It was also evident that though the study area is rich in desert plants, but as soon as the moisture level increases, the vegetation pattern shifts to a tendency developing deciduous forests. Shift in vegetation pattern due to change in climate conditions was also observed by other workers like Cooke (1901-1908), Singh et al. (2002), Hamann and Wang (2006) and Kelly and Goulden (2008).

The study reveals resemblance in the hilly flora of both eastern and western Rajasthan though the western area has extreme of climate and more of desert conditions.

It was also observed that in the pace of time some plants like *Lantana Camara* have started to establish here in Eastern Rajasthan and pose a threat to the native biodiversity. Such plants were also earlier studied by Reddy (2008) which have slowly established themselves in a particular area in course of time.

Thus we conclude that the vegetation also changes with the changing climatic conditions and the vegetation of Eastern Rajasthan is tending towards the climax.

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