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# Forest Vegetation Distribution as Elevational Zone in Ramgarh Vishdhari Wildlife Sanctuary, Rajasthan

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**ABSTRACT:** Forest vegetation classification according to elevational zone of Ramgarh Vishdhari Wildlife sanctuary of Rajasthan have been communicated in present work. Three zone, namely top, intermediate and lower have been identified as their vegetational distribution in sanctuary area.

**KEYWORDS:** *Anogeissus pendula*, *Boswellia serrata*, Ecosystem, Elevational, Plateau

## I. INTRODUCTION

Ramgarh Vishdhari wildlife sanctuary of Bundi district Rajasthan is a single compact and large forest ecosystem in Haroti region. It lies in the south-eastern portion of Rajasthan between 24° 59' 11" to 25° 53' 11" North latitude and 75° 19' 30" to 76 ° 49' 30" East longitudes. In present paper, an attempt has been made to record and investigated the distribution pattern of forest vegetation of Ramgarh Vishdhari wildlife sanctuary on the basis of elevation wise.

The dominant tree species of the area are *Senegalia catechu* (L.f.) P.J.H.Hurter & Mabb., *Lannea coromandelica* (Houtt.) Merr., *Sterculia urens* Roxb., *Anogeissus pendula* Edgew., *Butea monosperma* (Lam.) Kuntze, *Manilkara hexandra* (Roxb.) Dubard, *Vachellia leucophloea* (Roxb.) Maslin, Seigler & Ebinger, *Balanites aegyptiaca* (L.) Delile, *Sterculia urens* Roxb., *Mitragyna parvifolia* (Roxb.) Korth., *Wrightia tinctoria* (Roxb.) R.Br., *Terminalia arjuna* (Roxb. ex DC.) Wight & Arn., *Holoptelea integrifolia* (Roxb.) Planch. and *Phanera vahlii* (Wight & Arn.) Benth.

Forest vegetation has been classified in to two different ways:

1. Physical region wise and
2. Elevational zone wise

The present paper deals with elevational zone wise vegetational distribution of Ramgarh Vishdhari Wildlife sanctuary area of Rajasthan.

## II. RELATED WORKS

Notable studies on the flora and ecology of various parts of India have been made by Mathur (1960), Das and Bhimaya (1964), Vyas (1967), Champion and Seth (1968), Shetty and Singh (1987-92), De Groot, Wilson and Boumans (2002), Basu (2009), Sharma (2022) and Sathisha and Sachin Gowda (2023). Elevational zone wise vegetation analysis of area was provided in this article.

## III. METHODOLOGY

Present observation is based on continuous field visit of area. To record the relevant information, whole area of Ramgarh Vishdhari wildlife sanctuary were visited in different seasons by author from 2021 to 2023. Different zone wise forest vegetation was noted and described in this paper.

#### IV. EXPERIMENTAL RESULTS

On the basis of elevational zone, the forest vegetation of the hills of the sanctuary area has been divided in the following types:

1. Top zone (*Boswellia serrata* zone)
2. Intermediate zone (*Anogeissus pendula* zone)
3. Lower zone (miscellaneous forest zone)

##### 1. Top zone (*Boswellia serrata* zone)

The *Boswellia serrata* Roxb. zone is found on the tops of the hills. Almost all part of area is generally precipitous. The associates of *Boswellia serrata* Roxb. are *Anogeissus latifolia* (Roxb. ex DC.) Wall. ex Guill. & Perr., *Senegalia catechu* (L.f.) P.J.H.Hurter & Mabb., *Lannea coromandelica* (Houtt.) Merr., *Sterculia urens* Roxb. and *Wrightia tinctoria* (Roxb.) R.Br.

These forests are found as steepness of the slopes and the absence of economically important species. *Boswellia serrata* Roxb. was not exploited in the past but now it is used for commercial purposes i.e. for packing cases, gums and paper pulp etc. Gum is extracted in large quantities from *Sterculia urens* Roxb. The forest is generally open and stunted, the average height of the trees varies from 30' to 40'. Natural regeneration is poor and younger age classes sparse.

In the lower regions and depression where the rock is mainly genesis formation *Anogeissus pendula* Edgew. grows in more or less pure stands. There the slope is steep *Senegalia catechu* (L.f.) P.J.H.Hurter & Mabb. comes up in admixture with *Diospyros melanoxyton* Roxb., *Vachellia nilotica* (L.) P.J.H.Hurter & Mabb. and *Wrightia tinctoria* (Roxb.) R. Br etc.

##### 2. Intermediate zone (*Anogeissus pendula* zone)

In this zone the main species is *Anogeissus pendula* Edgew. which is of the greatest economic importance species in this area and yields good charcoal fuel and small sized timber for agricultural implements. The common associates of *Anogeissus pendula* Edgew. are *Senegalia catechu* (L.f.) P.J.H.Hurter & Mabb., *Vachellia leucophloea* (Roxb.) Maslin, Seigler & Ebinger, *Phanera vahlii* (Wight & Arn.) Benth., *Moringa oleifera* Lam., *Wrightia tinctoria* (Roxb.) R. Br, *Mitragyna parvifolia* (Roxb.) Korth., *Holoptelea integrifolia* (Roxb.) Planch., and *Butea monosperma* (Lam.) Kuntze.

The common shrubs in this zone are *Ziziphus nummularia* (Burm. f.) Wight & Arn., *Capparis sepiaria* L., *Grewia flavescens* Juss., *Grewia tenax* (Forssk.) Fiori., etc. In fully stocked *Anogeissus pendula* Edgew. forests growth is very poor. The common grasses of open area are *Dichanthium annulatum* (Forssk.) Stapf., *Aristida funiculata* Trin. & Rupr., *Heteropogon contortus* (L.) P. Beauv. ex Roem. & Schult., and *Apluda mutica* L. etc. The common climbers are *Tinospora cordifolia* (Willd.) Hook. f. & Thomson, *Mucuna pruriens* (L.) DC., *Abrus precatorius* L., *Pergularia daemia* (Forssk.) Chiov. and *Aristolochia bracteolata* Lam.

The tree growth in this zone is good. The average height of the trees is 20' to 30'. The regeneration of the principal species i.e. *Anogeissus pendula* Edgew., *Senegalia catechu* (L.f.) P.J.H.Hurter & Mabb. and *Vachellia leucophloea* (Roxb.) Maslin, Seigler & Ebinger are satisfactory. The regeneration of *Anogeissus pendula* Edgew. by root suckers is also common.

### 3. Lower zone (miscellaneous forest zone)

The lower miscellaneous forest can be divided in to three categories –

- (A) Forest along the moist banks
- (B) Forest on the open plateau
- (C) Forest of thorny shrubby vegetation

#### (A) Forest along the moist banks

Forest of moist banks consists of *Butea monosperma* (Lam.) Kuntze, *Vachellia nilotica* (L.) P.J.H.Hurter & Mabb., *Ficus benghalensis* L., *Ficus racemosa* L., *Ficus religiosa* L., *Syzygium cumini* (L.) Skeels and *Phoenix sylvestris* (L.) Roxb. The common shrubs of these areas are *Justicia adhatoda* L., *Jatropha gossypifolia* L. and *Vitex negundo* L., etc.

#### (B) Forest on the open plateau

These plateaus are situated near the foot hills. The forest growth is severely damaged by the graziers and right holders on account of the easy approach. The common tree species are *Vachellia nilotica* (L.) P.J.H.Hurter & Mabb., *Vachellia leucophloea* (Roxb.) Maslin, Seigler & Ebinger, *Butea monosperma* (Lam.) Kuntze and *Anogeissus pendula* Edgew. The common shrubs are *Capparis sepiaria* L., *Grewia flavescens* Juss., *Ziziphus nummularia* (Burm. f.) Wight & Arn. and *Calotropis procera* (Ait.) W. T. Ait.

#### (C) Forest of thorny shrubby vegetation

Many areas consist of thorny shrubby vegetation. The species found in these areas possess xerophytic character. The common species of these are *Vachellia nilotica* (L.) P.J.H.Hurter & Mabb., *Salvadora oleoides* Decne., *Capparis sepiaria* L., *Capparis decidua* (Forssk.) Edgew., *Calotropis procera* (Ait.) W. T. Ait., *Ziziphus mauritiana* Lam. and *Ziziphus nummularia* (Burm. f.) Wight & Arn.

## V. CONCLUSION

The aims of the study are investigated the distribution pattern of vegetation in different elevation zone of Ramgarh Vishdhari wildlife sanctuary area. Climatic, edaphic and biotic factors influence the vegetation and their density of area. Many angiosperm plant species, especially indigenous species of these localities need to be conserved.

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