

## Assessment of Biodiversity in the Dungra Range, District Banswara

Dr. Ashwani Arya

### Abstract

Biodiversity is the term given to the variety of life on Earth and the natural patterns it forms. The biodiversity we see today is the fruit of billions of years of evolution, shaped by natural processes and, increasingly, by the influence of humans. The loss of biodiversity threatens our food supplies, essential ecological functions, opportunities for recreation and tourism, and sources of wood, medicines and energy. In this context this study has tried to bring out an assessment of the biodiversity in the Dungra range, District Banswara

The entire Banswara district supports *Tectona grandis* in fairly good form but presently in various stages of degradation. Along with the *Tectona grandis* other stand top storey varieties are *Diospyros melanoxylon*, *Anogeissus latifolia*, *Lunnea coromandelica*, *Boswellia serrata* etc. *Butea monosperma* is common in the drainage system and at the base of the hills. The study area also supports *Tectona Grandis* or Teak in fairly good form but presently in various stages of degradation. The study area has 50% of teak in different stands with several other associates in which *Butea monosperma* (20%) is most prominent. The area is subjected to heavy grazing and excessive hacking with the result that vegetation cover has almost removed and severe soil erosion has taken place. In addition, quite a large area has been encroached and put under shifting cultivation by local tribe and other people.

The present study found that the increasing pressure of both human and livestock population is taking a heavy toll on the biodiversity of the area particularly in terms of rapid falling of trees and excessive grazing of livestock. The study suggests both short term and long term measures to conserve the biodiversity of the region as well as to revive the already degraded forests.

**Key words:** Banswara, Teak, Forest, Rajasthan, Biodiversity.

### Introduction

Biodiversity refers to the variety and variability among living organisms and the ecological complexes in which they occur. The site of occurrence of species is determined by the environment conditions of the site and the range of tolerance of the species. Human population depends on the biodiversity for food and other necessities. The increasing human population is depleting natural resources and causing pollution.

In view of this reality, the biologically rich and unique habitats are being destroyed, fragmented and degraded. The loss of biodiversity prevents evolutionary capacity of biota to cope up with environmental changes. Thus the major challenge to science is to check the loss of species and erosion of gene pool.

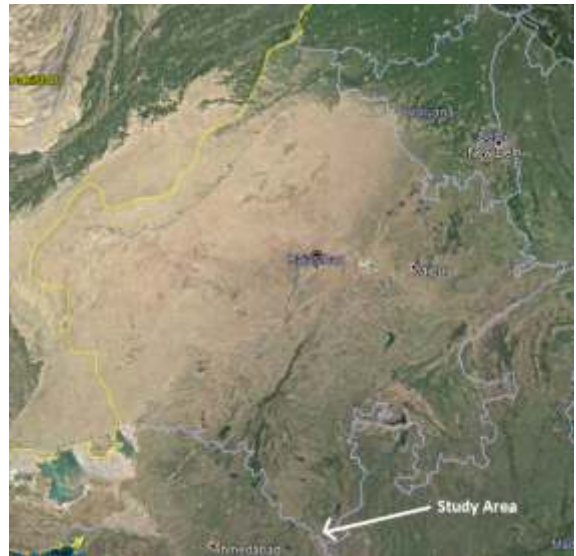
Banswara District has rich flora and fauna. It is also named so because of the bamboos (Bans) which were found in abundance in the forests. The forests include mainly teak. The wildlife includes a large variety of wild animals like leopard, chinkara, etc. Common birds in the region are fowl, partridge, black [HYPERLINK "https://en.wikipedia.org/wiki/Black\\_drongo"](https://en.wikipedia.org/wiki/Black_drongo) drongo, grey shrike, green bee-eater, bulbul, parrot etc.

The study area constitute one of the important protected forest areas of the district that imitate the

general condition of biodiversity in the whole district and also exemplifies the degradation of biodiversity which has been set in over the whole district. The general decline in the biodiversity in the region has the common and known reasons as excessive grazing, overdependence of native population on forest resources etc but the repercussions of that are not properly understood as the gradual declining teak population will in long run change the vegetative profile of the region. This is a very important belt of teak forests in the state and therefore it must be preserved and enriched as rapid deforestation is leading to the decline of this resources in the state.

The study suggests both short term and long term measures to first arrest the decline in biodiversity and then to enrich it by involving people directly in the management and conservation of the biodiversity of the area.

### Study Area



The study was done in Dungra range (District Banswara) of Rajasthan State. Banswara District has an area of 5,037 km<sup>2</sup>, 1.47% of Rajasthan state. It is bounded on the north by Udaipur District, on the northeast by Pratapgarh District, on the east and southeast by Madhya Pradesh state, on the southwest by Gujarat state, and on the west by Dungarpur District. Banswara is located at 23.55°N 74.45°E.[1] It has an average elevation of 302 metres (990 ft). Banswara is part of the Vagad region of southern Rajasthan, which includes Banswara and Dungarpur districts. The region is mainly inhabited by tribals, predominantly Bhils. Banswara and Dungarpur are collectively called as VAGAR, and in both the places local language is VAGRI.

The District lies in the Mahi River basin. The Mahi flows north through the district from its origin in the Vindhya Range of Madhya Pradesh, entering the district from the southeast and flowing north towards the northern end of the district, where it turns southwest to form the boundary between Banswara and Dungarpur districts before entering Gujarat and emptying into the Gulf of Cambay. It is also known as 'City of Hundred Islands', due to presence of numerous islands in the Mahi River, which flows through Banswara.

The study area as already been described is situated at an altitude of 300 m ,relief of undulated hills of 25 degree slope with varying aspect. Geologically the rocks constitute of Phyllite Quartzite . Soil is Greyish brown, sandy loam 15 cm deep with preponderance of concretionary pebbles.

**Methodology**

The methodology adopted for the study includes the first step of analysis and assessment of biodiversity in the region through field visits to understand the existing status and causes of degradation of biodiversity. Data pertaining to all related aspects of biodiversity have been collected from books, gazetteers, forest working plans, scientific monographs, journals, research papers and library records. The compilation of collected information has been done by collecting and collating material relevant for the study from diverse sources.

**Results and Discussions**



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Biodiversity forms the web of life of which we are an integral part and upon which we so fully depend. Biological resources are the pillars upon which we build civilizations. Nature's products support such diverse industries as agriculture, cosmetics, pharmaceuticals, pulp and paper, horticulture, construction and waste treatment. While the loss of individual species catches our attention, it is the fragmentation, degradation, and outright loss of forests, wetlands, coral reefs, and other ecosystems that poses the gravest threat to biological diversity. While loss of species has always occurred as a natural phenomenon, the pace of extinction has accelerated dramatically as a result of human activity. Ecosystems are being fragmented or eliminated, and innumerable species are in decline or already extinct.

Just like the entire Banswara district the study area also supports *Tectona Grandis* or Teak in fairly good form but presently in various stages of degradation. The study area has 50% of teak in different stands with several other associates in which *Butea monosperma* (20%) is most prominent. The complete classification of the vegetation is presented in tabulation form as follows :

Particulars	Descriptions														
Description of stand top storey	Average height 6 metres , Density 0.5  <table> <thead> <tr> <th>Species</th> <th>Percentage of species</th> </tr> </thead> <tbody> <tr> <td><i>Tectona grandis</i></td> <td>50</td> </tr> <tr> <td><i>Butea monosperma</i></td> <td>20</td> </tr> <tr> <td><i>Nyctantes arbor tristis</i></td> <td>10</td> </tr> <tr> <td><i>Diospyros melanoxylon</i></td> <td>All below 10 percent</td> </tr> <tr> <td><i>Boswellia serrata</i></td> <td></td> </tr> <tr> <td><i>Sterculia urens</i></td> <td></td> </tr> </tbody> </table> <p>On the top of hills, there is hardly two trees per hectare but in the drains, the density is comparatively better.</p>	Species	Percentage of species	<i>Tectona grandis</i>	50	<i>Butea monosperma</i>	20	<i>Nyctantes arbor tristis</i>	10	<i>Diospyros melanoxylon</i>	All below 10 percent	<i>Boswellia serrata</i>		<i>Sterculia urens</i>	
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<i>Sterculia urens</i>															
Under growth	<i>Holarrhena antydysenterica</i> <i>Helicteres isora</i> <i>Flacourtia indica</i>														
Ground flora	Very sparse consisting of <i>Cassia tora</i> , <i>Euphorbia hirta</i> , <i>Tridax procumbens</i> , <i>Borreria articularis</i> . Among grasses, <i>Aristida hystrix</i> and <i>Heteropogon contortus</i> are found.														
Climbers	<i>Cocculus pendulus</i> is found occasionally. On upper reaches <i>Dendrophthoe falcate-Syn loranthus longiforus</i> is parasitizing most of the <i>Boswellia</i> trees.														
Champion's type	4 a C1- dry teak.														
Proposed type	Degraded <i>Tectona grandis</i> series.														

### Conclusion

Teak trees are gnarled, crooked, hollow, mature and heavily pollarded. *Sterculia urens* and *Boswellia serrata* are generally found on the upper reaches whereas *Butea monosperma* is found in the lower reaches and foot hills. The area is subjected to heavy grazing and excessive hacking with the result that vegetation cover has almost removed and severe soil erosion has taken place. In addition, quite a large area has been encroached and put under shifting cultivation by local tribe and other people.

Most of the hills of Dungra range support this type of vegetation. Growth of tall grasses is possible where soil is washed away due to erosion, this system can be helpful.

Increasing pressure of both human and livestock population is taking a heavy toll on the biodiversity of the area particularly in terms of rapid falling of trees and excessive grazing of livestock. Soil of hilly and plateau tracks is fragile and has a thin horizon so these areas must be monitored very closely so that the soil erosion due to removal of vegetation cover can be checked by planting of new saplings which can bind the soil in short term and then these areas too can be made viable to support the teak vegetation as they were supporting prior to the deterioration conditions were set in.

People should be made a part of conservation efforts and they can be educated on various practices related to forestry as this type of participatory approach has always yielded good results the world over. Various practices such as Agro forestry, Community forestry and Farm forestry should be encouraged so that the dependence of the local population on the forests for fuel and fodder can be reduced to a large extent and the forests resources which are in a precarious state can be conserved.

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