



Short Review Paper

Loss of plant bio-diversity in Bundu, Ranchi District, Jharkhand, India

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Available online at: www.isca.in, www.isca.me

Received 20th January 2018, revised 5th March 2018, accepted 22nd April 2018

Abstract

Ranchi is located at the longitude of 85.32 and latitude of 23.35. The present study shows that there was change of 23.90 percent in the population compared to population as per 2001. Bundu is a town, in Ranchi district in the state of Jharkhand, India. Area of Bundu is 264.19 Sq. Km. It's Population is 72073. (According to Primary Census Abstract Source: 2001 Census). It is located on National Highway-33 between Ranchi and Jamshedpur and blessed with all the natural beauties. It is surrounded by mountains and forest. The study reveals that rapid growth and development has put severe pressure on agricultural land and forest in many area of Bundu. Deforestation is the permanent destruction of indigenous forests and woodlands. Due to unplanned deforestation had resulted in loss of many medicinally important plants in Bundu area. The eco-biological study of Bundu area revealed forest resources are decreasing year by year due to human activities. It was concluded that a reforestation programme followed by proper protection is need of time. Government policy should be implemented strictly.

Keywords: Growth, agriculture, biodiversity, Jharkhand, India.

Introduction

Growth and Development including road construction projects in Bundu block, Ranchi, Jharkhand, connect the undeveloped area to the highly developed area of Ranchi.

Ranchi and Jamshedpur are most developed city in the Jharkhand. Ranchi–Jamshedpur Highway. This is among most developed highways in Jharkhand.

Ranchi-Bundu-Jamshedpur, most well connected circuit in the state with NH - 33 connecting most of the spots.

It is a challenging balance between conservation and development due to highway infrastructure development¹⁻³. Crop improvement and production, exploitation of resource, human activities and road construction must be reconciled with the preservation of natural areas and value of biological conservation⁴⁻⁷.

Deforestation along both side of road in Bundu block, is one of the major factors affecting global environment change and loss of plant biodiversity. There are intense debate between ecologist and development planners as to the construction and development program impacts of the Bundu on different species, genus and natural habitats.

The objectives of the present work was to find out how various improvement projects in Bundu affect the plant biodiversity. It is a serious threat to the diversity of life.

Methodology

A general survey of plant species of Bundu block was done to collect information about the different species of plant and quantity of plant species for analysis. Agricultural lands was not included. There are two types of human activities, one is, past agricultural practices and second development of infrastructure, were considered in the study. Data was collected at regular intervals and analysed.

According to collected data from the field survey, different varieties of plant and abundance were quantified.

Analysis was also used to assess which species were significantly affected in their presence and/or abundance by human impact and environmental variables.

Results and discussion

An eco-biological study of Bundu block revealed the occurrence of more than fifty species of plant. Plant biodiversity in Bundu is rich but poorly explored. The systematic studies of this area revealed that after road reconstruction and growth, the number of genera and species are decreased or extinct. Among the important trees, *Acacia Arabica*, *Aegle marmelos*, *Artocarpus integrifolia*, *Azadirachta indica*, *Bauhinia variegata*, *Dalbergia sisoo*, *Ficus religiosa*, *Pongamia pinnata*, *Shorea robusta* and *Terminalia arjuna* are widely distributed around the Bundu area.

The taxonomic list of some important trees are given in Table-1.

Table-1: Effect of Human Interference or Deforestation on Plant Biodiversity in Bundu of Ranchi, Jharkhand, India.

Name of Plan (Botanical name)	Family	Quantity	
		Before Deforestation	After Deforestation
<i>Acacia arabica</i>	Fabaceae	+++	+
<i>Acacia catecú</i>	Mimosaceae	++	-
<i>Adina cardifolia</i>	Rubiaceae	+++	+
<i>Aegle marmelos</i>	Rutaceae	+++	++
<i>Anthrosphalus cadamba</i>	Rubiaceae	++	-
<i>Artocarpus integrifolia</i>	Moraceae	+++	+
<i>Artocarpus lakoocha</i>	Moraceae	+++	+
<i>Azadirachta indica</i>	Meliaceae	+++	++
<i>Bauhinia purpurea</i>	Fabaceae	+++	+
<i>Bauhinia variegata</i>	Caesalpiniaceae	+++	-
<i>Bauhinia retusa</i>	Fabaceae	++	-
<i>Bombax malabaricum</i>	Bombacaceae	++	-
<i>Butea monosperma</i>	Fabaceae	+++	-
<i>Cassia fistula</i>	Ceasalpiniaceae	+++	+
<i>Dalbergia sisoo</i>	Fabaceae	+++	+
<i>Emblica officinalis</i>	Euphorbiaceae	+++	+
<i>Ficus religiosa</i>	Moraceae	+++	+
<i>Gmelina arbórea</i>	Verbinaceae	++	-
<i>Madhuca longifolia</i>	Sapotaceae	+++	-
<i>Mangifera indica</i>	Anacardiaceae	+++	+
<i>Pongamia pinnata</i>	Fabaceae	+++	-
<i>Shorea robusta</i>	Dipterocarpaceae	+++	-
<i>Spondias Pinnata</i>	Anacardiaceae	+++	++
<i>Syzygium fruticosa</i>	Myrataceae	+++	+
<i>Tectona Grandis</i>	Lamiaceae	+++	-
<i>Terminalia arjuna</i>	Combretaceae	+++	+
<i>Ziziphus jujube</i>	Rhamnaceae	+++	+

Note: - = absence, + = presence, ++ = mild presence, +++ = intense presence.

Discussion: The present investigation showed the correlation between human activity, development, biotic – abiotic factors of environmental and floral composition and plant gene-bank in different habitats of Bundu area, Ranchi. The forest wealth is dwindling due to overgrazing, over exploitation, encroachments, unsustainable practices, forest fire and indiscriminate sitting of development projects in the forest areas. Withdrawal of forest products, including fuel wood, timber etc. are much beyond the carrying capacity of forests.

Deforestation in the district causes certain serious environmental problems like soil erosion, loss of soil fertility, loss of biodiversity and climate change. Habitat loss, fragmentation and degradation are currently the most important threats to biodiversity. However, human activities are highly variable in their influence on biodiversity⁸⁻¹³.

The survey of plant bio-diversity area revealed forest resources in Bundu are decreasing year by year due to human activities. It was concluded that afforestation programme followed by proper protection is need of time. Government policy should be implemented strictly.

Conclusion

The results of this field study are important for many reasons. It helps to identify the effects of human activity, changes in environmental factors, construction of road, development and land use, on the species diversity and composition. It is meaningful for to maintain plant - diversity and vegetation composition and distribution in natural habitats. It needs to develop and implement the strategies to protect the natural habitats of plant- diversity in natural ecosystems. Such over-exploitation and loss of habitat is leading to the extinction of various microbes, plants, animals and saprophytes.

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