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## Biodiversity conservation history of Satpura hills

**Balendra Pratap Singh, Ravi Upadhyaya and Nikhil Kanungo**

### Abstract

There are only tribal villages in the Satpura plains whose contribution often depends on plants and animals such as Neemghan (*Azadirachta indica*), Bariyam (*Mangifera indica*), Rorighat (*Malotus filipensis*), Badkachar (*Ficus bengalensis*), Kanjighat (*Pongamia pinnata*), Churna (*Ziziphus rugosa*), Raikheda (*Brassica juncea*), Anjandhana (*Hardwickia binata*), Bagdev (*Panthera tigris*), Reechgarh (*Ursus thibetanus*), Sita Dongri (*Lygodium flexuosum*). The tribals here make their living from the materials obtained from the plants found around their residence and protect them.

**Keywords:** Satpura hills, Neemghan (*Azadirachta indica*), Bariyam (*Mangifera indica*)

### Introduction

Biodiversity is the sum of all life on earth. Every single individual life form from the smallest bacteria in the soil to the largest whale in the sea, is a component of Earth's biodiversity. But biodiversity doesn't stop at the individual. Biodiversity is also the relationships between these life forms and their habitat. That includes the relationship between plankton and whales that help produce oxygen in the atmosphere, seeds and rhinos that help plant forests, and bacteria and plants that change the chemistry of soils.

The Satpura Range is a range of hills in central India. The range rises in eastern Gujarat state near the Arabian Sea coast, running east through Maharashtra and Madhya Pradesh to Chhattisgarh. The range parallels the Vindhya Range to the north, and these two east-west ranges divide the Indo-Gangetic plane of northern India and Pakistan from the Deccan Plateau to the south. The Narmada River runs in the depression between the Satpura and Vindhya ranges, and draining the northern slope of the Satpura range and running west towards the Arabian Sea. The Tapi River drains the southern slopes of the western end of the Satpura Range. At its eastern end, the Satpura range meets the hills of the Chota Nagpur plateau (Figure-1).

### Biodiversity of Satpura Hills

Satpura hills area, which constitutes the Central part of India (Figure-6), is one of the highly biodiversity rich areas with high floristic diversity and unique plant life forms because of the varied spectrum variations of the latitude, altitude, rainfall, topography, soil type and other climatic aspects. Pachmarhi Biosphere Reserve area is often recognized as "Genetic Express Highway" linking two biological hot spots of the country viz. Eastern Himalayas and Western Ghats, also as confluence of northern and southern type of vegetation.

The area is virtually a junction of forest representative types prevailing in the state. It is a natural junction of two most important timber species viz. Teak and Sal. The entire forest can be broadly classified into three major type's viz. moist deciduous, dry deciduous, central Indian sub-tropical hill forest. However, it can further be classified into seven sub types based on microclimatic conditions, soil types, topographical features etc.

### Floral diversity

The study of the floral diversity in the area carried out by state forest research institute, Jabalpur in 1993, reported 1381 plant species, which comprise 8 species of algae, 22 of fungi, 83 Bryophytes in 34 families, 71 pteridophytes in 16 families, 07 species of gymnosperms and 1190 species of flowering plants (angiosperms).

The occurrence of relict form of Sal (*Shorea robusta*) in the predominant teak (*Tectona grandis*) bearing area is a unique ecological phenomenon in this biosphere reserve.

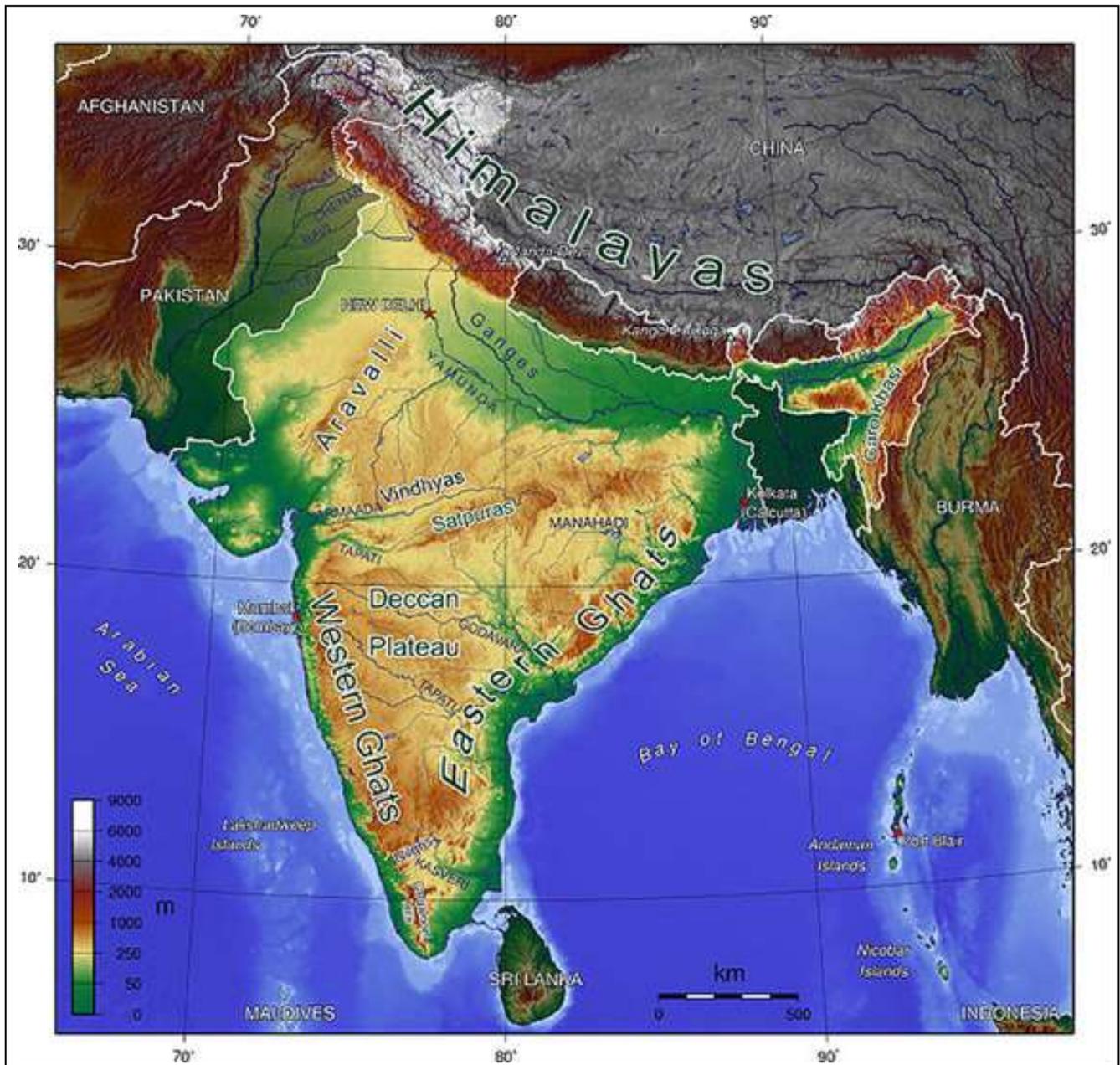


Fig 1: Satpura hills located in Geographical map

This patch is separated by a distance of about 160 km from the nearest major belt of sal forest in east Mandla and north Balaghat divisions. The area is the upper limit for the growth of sal. It is also the western limit of Sal growth, thus making the area unique.

Several angiospermic plants are also observed to be rare in the area. Some of the important species of ferns are *Psilotum nudum*, *Isoetes panchanaii*, *Selaginella exigua*, *Ophioglossum nudicaule*, tree ferns i.e. *Cyathea gigantea*, and *C. Spinulosa* etc., are found in Pachmarhi Biosphere Reserve. The existence of several species viz., *Psilotum nudum*, *Lycopodium cerenum*, *Polybotrya appendiculata*, *Lygodum flexuosum*, *Cyathea spinulosa*, and several other medicinal plants are in danger due to constant botanical excursions of students and research scholars of universities/research institutions. *Drosera indica* an insectivorous plant, is also found in this region. A few clumps of rare and endemic species of bamboo (*Bambusa polymorpha*) occur in the moist teak forest of Bori reserve. In Pachmarhi Biosphere Reserve, there are several species like *Melastoma melabaricum*, *Murraya paniculata*, *Holmskioldia sanguinea*; *Blumea*

*lanceolaria* and *Sophora interrupta*, which are not found anywhere else in the state. It is one of the areas, where natural forests support large sized wild mango trees, whose off springs have arisen along suitable site, dispersed by man and animals.

#### Faunal diversity

The faunal composition represents the Deccan Peninsular zone of biogeographic classification of India. Most of the Pachmarhi Biosphere Reserve is covered with dense forest vegetation and forms an ideal habitat for wild animals. Over 50 species of mammal, 254 species of birds, 30 species of reptiles, 56 species of butterflies and numerous other forms of animals are found in the area. The steep vertical scarps are home to numerous raptors like honey buzzard and black eagle and hawks. These forests have both grey as well as the red jungle fowl, which are usually found separately either in north or south India, respectively. Among the other birds represented are Malabar pied hornbill, Malabar whistling thrush and paradise fly catcher. The presence of numerous streams, dense foliage, wild flowers, woodland edges and

damp patches attract numerous colorful butterflies including orange oak leaf, black rajah, great egg fly, blue pansy etc. According to wildlife (protection) act (1972) the wildlife belonging to schedule I, II, III & IV also occur in the area. As per wildlife census (2006), the tiger population has increased from 35 to 39 in 2004. However, as per 2004 wild life census, 69 leopards, 300 barking deer's, 1900-2100 bison (guar), 2300-2500 Cheetals, 3500-3600 Sambhars, 210-235 sloth bear, 35-40 Chinkara, 25-30 black buck and several other animal species have been reported in Pachmarhi BR. Tigers being top carnivore are generally confined to deep forests of national park and sanctuaries. However, leopards are found to be well distributed in the entire forest area of BR. Gaurs are the largest wild herbivore in the area and are localized in the moist and semi-moist forest having bamboo underneath. Sambhar and chital are found to be freely distributed in the area. Barking deer and four horned antelopes are also reported to be well distributed in the entire area. Nilgai, being a larger herbivore are localized in the drier area, where the growth of forest is thin. Bears are also frequently seen in the scrub forests. Langurs are quite common and distributed widely but rhesus monkeys are found at localized places in Pachmarhi plateau particularly near habitations, thus being endemic species. At least 14 species of mammals and reptiles are endangered including tiger, gaur or Indian bison. Several species like rhesus monkeys, Indian giant squirrels and flying squirrels are endemic to the area. The crested serpent eagles, giant squirrel, flying squirrel are also rare species found in the region. According to Shannon-Weaver the biodiversity index comes to be 1.998 which is highest faunal diversity in central India.

### Conservation History

Environmental concerns and conflicts have surfaced throughout human history, from the earliest settlements to the latest headlines. This comes as a surprise to many people because our emphasis on history has all too often focused on war and politics rather than environment, culture and development.

In the Satpura hills, we know that people were the rock paintings in the area over the area over 10,000 years ago. In 1962, when Capt. James Forsyth entered the valley, the tourist region was virtually unpopulated. Satpura hills have long conservation history. The scientific management and conservation of the Indian forests started in 1862 by demarcating Bori Reserve Forest, which lies in Bori Sanctuary. This also resulted in the establishment of the Forest Department in India. The system of firelines to control the destructive annual summer fires was also first laid out in Bori. Thus the area finds a unique place in the history of the management of the forest of India. History The Ramayana and Mahabharata speak of the entire tract south of Jamuna as a land of wilderness inhabited by demons, while religious hermits of Aryan races dwelt in hermitages in their midst. By the fourteenth century, the area had come to be called 'Gondwana' after the Gond tribe who chiefly inhabited it. In the fourteenth and fifteenth centuries, many Rajput clans, who by Akbar's time probably had succeeded in reclaiming the Narmada valley for agriculture, infiltrated this vast land of the aborigines. The Gonds retired to the higher plateau and slopes, to continue their hunting, and their method of 'Dahya' or shifting cultivation. In course of time, even the larger plateau was invaded by the aggressive northerners. The aborigines remained only in charge of those lands, which were too arduous to till by the northerner's methods. This

land was racked by much unrest due to the tensions between Marathas and Moguls and was ransacked by Pindaris and renegade soldiers. Around 1818, with the advent of British rule and administration, the Pindaris were liquidated. The British too were more occupied in the fertile plains and cared less for the aborigines and their jungles. In 1861 the Central Provinces were created, with Sir Richard Temple as the first Chief Commissioner. In 1861, the Forest Department was set up in Central Provinces under Capt. G.F. Pearson of the Madras Army, who was appointed Superintendent of Forests, with Capt. J. Forsyth of Bengal Staff Corps as one of his assistants. In 1862, the Forest Department of Central Provinces started in a building named Bison Lodge in Pachmarhi. The original house no longer exists, but at the same spot, another building has been constructed, also called Bison Lodge, which has lately been converted into a Forestry Memorial and Museum by the Forest Department. The earliest forest reservation in the State of Bori Reserve was done in 1865, the year the Indian Forest Act was for the first time promulgated by the Crown. This was superseded by the Indian Forest Act, 1927, which, with amendments still holds good. The landholding system, put on a systematic basis in Akbar's time also evolved along with social and political changes, until now there is only one type of land holder-the landowner known here as 'Malik Makbuza' literally meaning the owner possessor, and a definite ceiling has been put on the quantum of land held. The village contribution is frequently depending on plants and animals majority such as Neemghan (*Azadirachta indica*), Bariaam (*Mangifera indica*), Rorighat (*Mallotus philippensis*), Badkachhar (*Ficus bengalensis*), Kanjighat (*Pongamia pinmeta*), Choorna (*Ziziphus rugosa*), Raikheda (*Brassica juncea*), Anjandhana (*Hardwickia binata*), Baghdeo (*Penthra tiges*), Reechgharh (*Ursus thibetanus*), Seeta Dongari (*Lygodium*).

In the vicinity of the Pachmarhi plateau, there are large numbers of cave shelters of great archaeological interests, contained in them are several rock paintings executed by the tribes. Some of these may be around 100 years old while a majority of these paintings belong to the historical age, being 2500 to 1500 years old. Among them, Mahadeo, Catacomb, Jatashankar, Pandav caves, Mandiadeo are important from an archaeological point of view. The painting depicts a warrior with sword and shields, bows and arrows and also elephants, tigers, panthers, Cheetals, dogs, peacocks, horses, etc. Paintings of women are less common than men. A deal can be learned from the paintings which are among the finest example of rock paintings in India. The old public buildings at Pachmarhi plateau constitute the most valuable cultural heritage handed down from the past.

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