



Dimensions of Biodiversity and Wild life Conservation in Kanha Tiger Reserve of Madhya Pradesh, India

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ABSTRACT:

The term biodiversity refers to the innumerable species of plants and animals present on the earth. The physical features of earth surface and climate has given birth to the diversity of flora and fauna. All living beings live in a certain environmental condition only, in this way the totality of flora and fauna community on the earth or any part of it is included under biodiversity. We get food, wood, industrial raw material and medicines from plants and animals. Apart from being important from the economic and social point of view, biodiversity is also very important from the point of view of tourism and recreation along with ecological balance. But due to the increasing environmental degradation and pollution in the recent era, the widespread use of pesticides in agriculture, deforestation and increasing pressure of population, biodiversity has declined rapidly. The National Parks established in the country are very important from the point of view of wildlife conservation. Present study examines the efforts and programs to be done for the conservation of biodiversity found in Kanha Tiger Reserve. Kanha national park is an area with rich in biodiversity, where about 800 species of plants and animals are present, some of which are classified as extremely rare and other are rare. This tiger reserve is mainly known for Barasingha and tiger conservation, which is located in the Mandla and Balaghat districts of Madhya Pradesh. Due to the efforts made for the conservation, the number of Barasingha Kanha tiger reserve has increased to 800 while the number of tiger has increased to 120. In terms of biodiversity there are 35 types of mammals, more than 25 types of reptiles, 300 species of birds and many types of insects and plants are found.

KEYWORDS: Biodiversity, Conservation, Climate, Species, Vegetation, Wild life.

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I. INTRODUCTION:

Flora and fauna are very important resources given by nature which are essential for human existence. Various needs of human beings are fulfilled by plants and animals. Therefore, conservation of biodiversity is very important from the point of view of balance in nature along with meeting the biological needs of human beings. India is a very vast country; its location, extent and vastness has given rise to diversity of surface and climate here. The famous climate scientist Spatte says that there are as many climate types in India as there are in the world climate. Biodiversity is born from climate, trees, plants and physical components found on earth surface. India is a rich nation in terms of biodiversity. About 40 percent of the total biodiversity found in the world is present in India where about 81000 species of animals and 45000 species of flora have been identified and many species are yet to be discovered. According to Robert May scientific assessment, more than one lakh plants and more than three lakhs' animals are yet to be discovered in India. There is also a fact in the distribution of biodiversity on the earth that maximum species are found in tropical region and minimum species are found towards the poles. India is a tropical country where maximum biodiversity exists. Out of 34 hotspots of biodiversity in the world, 02 are located in India. At present, the increasing population of the country and human activities have greatly affected the forests and wild animals. Forests are the natural habitat of animals. At present, the shrinking forest area has put a threat to the existence of many animals. National parks were established with a view to provide safe habitat to wild animals. This is a reserve area where deforestation and grazing of animals are strictly prohibited. This is a very important step from the point of view of conservation of rare and extinct species. The first national park in India was established in 1936, which is currently known as Jim Corbett National Park. At present, the total number of national parks and sanctuaries in the country is 176. Kanha National Park was established in 1955 which was

declared as Tiger Reserve in 1973. This is the first tiger reserve of Madhya Pradesh and the night tiger reserve of India. Today, due to increasing human activities such as expansion of agriculture, deforestation, urbanization, industrialization, mining and tourism etc., extensive damage has been caused to biodiversity. At present there is a rapid decline in the forest area. According to the Forest Survey Report 2021, the total forest and forested area is 80.9 million hectares, which is 24.62 percent of the total geographical area. Degradation of land under forests has caused damage to the natural habitat of wild animals in the last fifty years, animals have been hunted on a large scale for leather, horns, teeth, hair, feathers etc. On the other hand, due to the destruction of the reproductive capacity of living beings due to increasing pollution, many animals have reached the verge of extinction. Therefore, conservation of biodiversity is necessary for the future of mankind and environmental balance.

II. METHODOLOGY:

Primary and secondary data have been used for the present study. Direct observation method and interview were used for the collection of primary data. The collection of secondary data has been done from the Forest dept.M.P. Government, reports published by Kanha Tiger Reserve from time to time, survey reports and from the official website of the Kanha National Park. The collected data were processed and presented using tables and cartographic techniques.

III. STUDY REGION:

Kanha National Park and tiger reserve has been selected for the present study. It is located in the Maikal ranges of the Satpura mountain in the Mandla and Balaghat districts of Madhya Pradesh .It was notified as a wildlife sanctuary in 1933 which was upgraded to a national park in 1955 further it is declared as tiger reserve in 1973.Kanha tiger reserve included among the first nine tiger reserves which were launched during 1973-74 under project tiger. Kanha tiger reserve has a glorious history of wildlife conservation; besides the large number of tigers it has the only world population of Barasingha. Geographically the Kanha national park and tiger reserve is lies between 22^o 03" to 22^o 27" north latitudes and 80^o 25" to 81^o 07" east longitudes. It covers an area of 2074 Sq.Kilometer and is comprised of two division ,namely Kanha national park which is spread over 940 Sq.Kilometer surrounded by buffer zone of 1134.31 Sq.Kilometer .The park is divided in to six ranges ie. Kanha, Kisli, Mukki, Sarhi, Bhainsaghat and Supkhar.

Kanha National Park is situated on the northern slopes of Maikal ranges of east Satpura mountain. Vindhyaachal mountain is situated in its north and Satpura mountain range in the south and these ranges extend up to the plateau of Chhota Nagpur in the east. This is mainly the area of Deccan Trap, in which, in the eastern part basalt rocks formed by lava coming out of volcanic eruptions and in the western part there is predominance of granite and schist rocks. Clay rocks are found in the plains and valleys here. Soils of Kanha national park are varying place to place and rich in humus as most of the part is covered by black cotton soil, alluvial, barra and clayey sandy soil. Banjar and Halon rivers are the main rivers flowing here which are tributaries of Narmada River. The Banjar River divides the study area into north-east and north-west parts while the Halon river divides the study area into east and north-east. Many small rivers and streams from the mountainous regions join these rivers, among which Godhuni, Gondla, Sulkum and Surpan are prominent. There are many reservoirs, ponds and tanks located throughout the national park which are part of the drainage system Kanha tiger reserve. The climate of the study area is tropical with an average rainfall of 1300 mm. As like other parts of the country, there are mainly three seasons – summer, monsoon and winter. More than 90 percent of the rainfall is received in the four months of monsoon. May is the hottest month with temperatures reaching up to 45 °C while January has an average temperature of 20 °C.

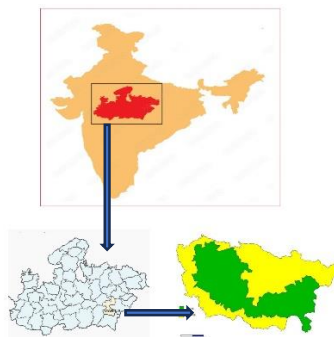


Fig.1: Location of Kanha Tiger Reserve in India and M.P.

IV. OBJECTIVES OF THE STUDY:

The objectives of the present study are as follows-

1. To Study the geographical structure of Kanha Tiger Reserve
2. To Study the wild life conservation in Kanha Tiger Reserve.

3.To study the biodiversity of flora and fauna in Kanha National Park.

4.To study the wild life conservation practices in Kanha tiger reserve.

V. RESULT AND DISCUSSINS:

5.1 Analysis of Biodiversity:

Kanha National Park and Tiger Reserve area is rich in terms of biodiversity. It is home to many rare and endangered animals. according to the reports of M.P. Government Forest department there are more than 35 species of mammals, about 300 species of birds,26 species of reptiles and over 450 types of insects are found.

Wildlife:

Kanha tiger reserve is an important protected area and known for its wide and rich wildlife diversity. Mainly carnivorous animals like tiger (*Panthera tigris*), leopard (*Panthera pardus*), sloth bear (*Melursus ursinus*) striped hyena (*Hyaena hyaena*) wild dog (*Cuon alpinus*) wild cat (*Felis chaus*) wolf, jackal, Indian fox (*Vulpes benghalensis*), ruddy mongoose, common mongoose, flying squirrel, Indian pangolin. and Indian porcupine are found in Kanha National Park. Ratel (*Melivora capensis*), small Indian civet (*Viverricula indica*) smooth coated Indian otter (*Lutra perspicillata*) are rarely seen carnivores. Among the herbivores here, Barasingha (*Cervus duvauceli branderi*), sambar (*Cervus unicolor*), gaur (*Bos gaurus*) Indian deer, chital (*Axis axis*), chinkara (*Gazella bennetti*), nilgai (*Boselaphus tragocamelus*), chowsingha (*Tetraceros quadricornis*) four horned antelope (*Tetraceros quadricornis*), barking deer (*Muntiacus muntjac*), black buck (*Antelope cervicapra*), wild pig (*Sus scrofa*) the common langur (*Presbytis entellus*), the Indian porcupine (*Hystrix indica*), honey badger (*Mellivora capensis*), and rabbits are prominent, which can be seen here in the grasslands. Barasingha or southern swamp deer is found only in this national park.

Birds:

More than 300 species of birds are found in Kanha National Park. Many migratory birds are also found. Birds including Marshalls lora (*Aegithina nigrolutea*) white bellied minivet (*Pericrocotus erythropygus*) striated grassbird (*Megalurus palustea*) variety of Galliformes, swan, Indian vulture, honey buzzard, stork, duck, milk king, pond herons (*Ardeola grayii*), common peafowl (*Pavo cristatus*), Indian roller (*Coracias bengalensis*), white breasted kingfisher (*Halcyon smyrensis*) eagle, Asian paradise flycatcher, white rumped shama, jungle babbler, Eurasian black bird, golden oriole, common Gray hornbill (*Tockus birostris*), spotted owlet, common kestrel, painted francolin and Indian pitta are found here. Variety of owls, eagles and vultures were found in Kanha national park.

Reptiles:

More than 25 species of reptiles are found in Kanha National Park. Among the reptiles crocodiles, soft bonnet tortoise, frogs and watchdogs are found in large numbers in the rivers and ponds of the study area. Various species of snakes, iguanas, Indian rock pythons (*Python molurus*), common monitor lizards (*Varanus bengalensis*), chameleons are the main reptiles here. The snakes found in Kanha National Park are Indian Cobra (*Naja naja*), rat snake (*Ptyas mucosus*) Rasal Bipper, Karait, Dhaman and *Bhediya* snakes.

Fish Diversity:

Over 20 species of fishes are found in Kanha Tiger Reserve. Among the species *devario aequipinnatus*, *channa gachua*, *esomus danricus* and *giant danio*, *common rasbora*, catfish (*Wallago attu*), mud perches, brown snakehead, green snakehead are common fish found in Kanha tiger reserve.

Insects:

Kanha National Park is rich in various types of micro-organisms, which contribute significantly to the ecosystem here. Insects are the main diet of birds and small creatures found in Kanha tiger reserve. Here many species of butterflies, spiders, ants, termites, grasshoppers, ladybugs are found in abundance. They are very small creatures but play a very important role in ecosystem and environment.

Vegetation:

Mainly sal, teak, bamboo mixed forest and other different types of vegetation exist in Kanha National Park. According to Seth (1968), 2 types of forests are found in Kanha National Park.

1. Moist Peninsular Sal Forest

2. Southern Dry Mixed Deciduous Forest

Among the trees of Kanha National Park mainly includes sal (*Shorea robusta*) saj (*Terminalia tomentosa*), bija (*Pterocarpus marsupium*), jamun (*Syzygium cumini*), semal (*Bombax malabaricum*), Teak (*Tectona grandis*) is the main tree of the forests here. Bamboo (*Dendrocalamus strictus*), Tendu (*Diospyros melanoxylon*), haldu (*Adina cordifolia*), dhaba (*Anogeissus latifolia*) Salai (*Boswellia serrata*), khair (*Acacia catechu*), saj (*Terminalia*

tomentosa) Palash (*Butea monosperma*), bel (*Aegle marmelos*), Mahuva (*Madhuca indica*), achar (*Buchanania latifolia*), tinsa (*Ougeinia oojenensis*), aonla (*Embllica officinalis*), harra (*Terminalia chebula*), mango (*Mangifera indica*), and gular are the main vegetation found here. The grasslands are wide on the flat plains and river banks, which are the main pastures of the herbivores here. mainly bhurbusi, sabai, lampa, khas and bhond grass are found in Kanha National Park.

5.2 Barasingha Conservation in Kanha Tiger Reserve:

Barasingha is an endangered species of deer which is found only in Kanha National Park across the world. This is a big sized deer whose height can be up to 135 cm and weight can be up to 180 kg. It is found in marshy areas under the plains in the park. Before 1950, the number of Barasingha in this park was more than 500, but between 1950 and 1970, there was a rapid decline in their number. Their number declined to 60 in 1968 and 66 in 1970. The main reason for this decline in the number of Barasingha was illegal hunting which was done on a large scale for their skin, meat and horns. Diseases, infections and human interference and encroachment into their natural habitat were other important factors. As a result, this species became endangered. Due to efforts made for Barasingha conservation and various programs, their numbers again increased after 1970. Table no 1 shows the trends of the growth in the number of Barasingha in Kanha tiger reserve.

Table 1
Trends of growth of Barasingha in Kanha tiger reserve.

Year	Number of Barasingha
1975-76	215
1985-86	434
1995-96	322
2005-06	335
2015-16	450
2020-21	800

Source: Office of Chief Conservator Forest, Mandla.

Above table indicates that the number of Barasingha in Kanha tiger reserve was 215 in 1975-76 which increased to 434 in next ten years but during 1985-86 to 1995-96 the number of Barasingha again decreased to 322. the number of Barasingha during 1995-96 to 2005-05 remain constant and was increased to only 335 recorded an growth of 4.03 per cent only this number of Barasingha is increased to 450 in 2015-16 while during 2015 to 2020-21 the number of Barasingha has increased very rapidly and estimated that there are more than 800 Barasingha in the Kanha tiger reserve (Diagram 2). During 1975-76 to 2020-21 the number of Barasingha has increased by 272.09 percent.

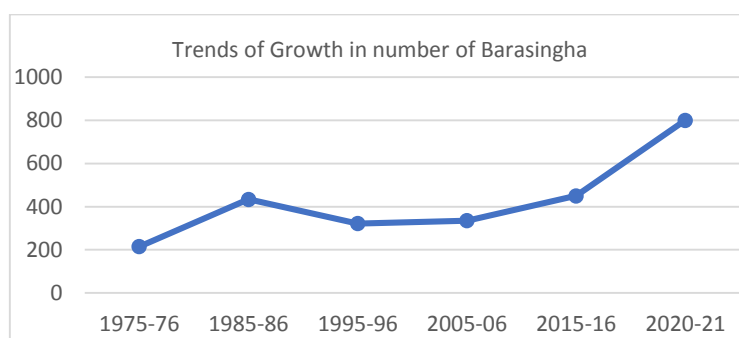


Diagram 2

5.3 Tiger Conservation in Kanha Tiger Reserve:

Kanha National Park is included among those national parks of the country which were included under the Tiger Project in early stage. In view of the drastic decline in the number of tigers in the country, Project Tiger was started in 1973 and at the same time Kanha National Park was declared a Tiger Reserve. Kanha Tiger Reserve is the first and largest tiger reserve of Madhya Pradesh. According to the Tiger Census 2022 released by the Ministry of Forest and Environment, Government of India, there are 3925 tigers in the country, out of which 785 tigers are found in Madhya Pradesh. And about 135 tigers in Madhya Pradesh are outside from tiger reserve area. Madhya Pradesh has largest number of tigers in the country. Kanha tiger reserve is home to about 115 tigers. It is the result of the programs and efforts being run for tiger conservation that adequate numbers of tigers exist here. From the point of view of tiger conservation, the major problem was the more than 45 villages of the Gond and Baiga tribes located here and their 28,000 population, which were successfully displaced.

The number of tigers was recorded 48 in 1975-76 which increased to 74 in 1985-86. further the number of tigers is increased to 97 in 1995-96. during 1995-96 to 2005-06 the number of tigers is increased to 105 which is estimated 118 in 2020. during the 1975-76 to 1995-96 the number of tigers in the Kanha tiger reserve is increased by 102.08 percent while during 1995-96 to 2020 it is increased by 21.64 percent

VI. STRATEGIES FOR WILD LIFE CONSERVATION:

Kanha tiger reserve management has made some good strategies for the wild life conservation and protection which resulted growth in the number of various species. Over the years more than 30 villages have been relocated outside core area to provide natural habitat for wild animals. The tiger reserve is divided in to core and buffer zone for better management. The park management has constructed small stop dams, reservoirs and ponds at many places so that drinking water is always available to the wild animals, especially during the summer season when most of the water sources dry up. Apart from this there is a strong monitoring system undertaken by trained officers to protect the wild life from any possible illegal activity from outside

VII. CONCLUSION:

Kanha National Park and tiger reserve is the natural habitat of wild animals. Rich biodiversity exists in the hills, valleys and wide grasslands here full of sal, *saj, jamun, aonla, mahuwa, teak, tendu, salai, palas, khair* and bamboo trees. Many species of mammals, reptiles, birds and insects are found in the national park. With the implementation of various programmes and efforts under tiger project made for the conservation of tigers there is rapid increase in the number of tigers and more than 118 tigers are currently present in this park. Due to the efforts made for Barasingha conservation, there has been an encouraging increase in the number of Barasingha. Once close to extinction, the population of southern swamp deer increased to 800. Illegal hunting, deforestation, animal grazing, illegal forest produce collection are the main problems of this park. In conclusion, it is very necessary to conserve biodiversity in addition to mankind and for ecological balance.

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