



THE ANALYTICAL STUDY OF BIO-DIVERSITY IN MAHARASHTRA

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ABSTRACT: India is famous for its biological diversity in the world. It has five distinct bio-diversity zones which are known for their rich fauna and flora. The bio-diversity of India is distributed in five zones seeing its varied ecological characteristics and geographical importance. Maharashtra home to 6 national parks and 48 wildlife sanctuaries. The forests of Maharashtra are densely populated and rich in bio-diversity. Particularly, it is known for its National Parks and rich bio-diversity both mammals and avifauna. On the basis of ecological aspects a scientific study has been carried out with respect to wild animal biodiversity in bio diversity of maharashtra. The present investigation was done to enlist, identify and number of different species of mammals, reptiles and birds. The moist and dry deciduous forests of north Sahyadri to dense forest in western vidardh region lead to a better natural habitat for wildlife. Maharashtra is home to many wildlife sanctuaries and national parks. These national parks and sanctuaries are home to many rare species of flora and fauna. Maharashtra has a staggering biodiversity. The state finds its state symbols in the Indian Giant Squirrel or Shekru.

Key words: - Biodiversity, Conservation, Eco System, Western Ghat, UNESCO World Heritage Sites

INTRODUCTION :

Bio-Diversity of Maharashtra

Biodiversity describes the richness and variety of life on earth. The term biodiversity was coined in 1985. It is important in natural as well as artificial ecosystems. It deals with nature's variety, the biosphere. It refers to variabilities among plants, animals and microorganism species. To safeguard its biodiversity Maharashtra has 6 national parks, 48 wildlife sanctuaries, and 6 conservation reserves as protected area networks (as per the India State of Forest Report, 2019). The forests region of Maharashtra comprises 17% of the total area which are present in the eastern part of the

state and the Sahyadri range also known as western ghat. Maharashtra, the third largest state is one of the most industrialized and urbanized states of India. It is located on the west coastline along the lush green Konkan region. Several hill stations and water reservoirs with semi evergreen and deciduous forests are found in Western Ghats and the Sahyadri mountain range. The Vidarbha region, northern part of Maharashtra, features dense forest. The National parks are known for different species of mammals, reptiles, amphibians, avifauna, orthopoda, river fishes and other wild animals which attract millions of tourists every year.

The National Parks are the best examples of the conservation of bio-diversity. Some Parks are more dense, deep, explorable and suitable for regular safari tourism. The national parks namely are Chandoli NP, Gugamal NP, Nawegaon NP, Pench NP straddle across a two states Maharashtra and Madhya Pradesh, Sanjay Gandhi (Borivilli) NP; existing within a metropolis, Tadoba NP. Maharashtra state is actively contributing to the conservation of biodiversity.

It has a population of about 312 (270 to 354) tigers as per the status of tigers in India- 2018 report. The Malvan (Marine) Wildlife Sanctuary was designated to conserve coastal, coral and marine biodiversity

The Western Ghats is considered one of the richest biodiversity hot spots in the world. The evergreen trees, moisturous bushes and grasslands are a heaven for wild animals to move and breed freely in the open natural environment.

The beautiful flamingoes that get their reddish-pink coloration through the pigments obtained from the algal-phytoplanktonic-invertebrate diet can be seen in large numbers at Thane Creek Flamingo Wildlife Sanctuary. An area at **Amboli** in Western ghats in Sindhudurg district, where a rare freshwater fish species was discovered, was declared as a biodiversity heritage site by the Maharashtra government on 31st March, 2021. **Schistura Hiranyakeshi** — a new fresh water fish species was discovered near Amboli in Sawantwadi tehsil of Sindhudurg district. It is a rare sub-species of Schistura, a freshwater loach. few other sites were also declared as biodiversity heritage sites like the Glory of Allapalli in Gadchiroli district, Landor Khori Park in Jalgaon, Ganesh Khind in Pune, myristica swamp vegetation in Sindhudurg district.

Bhadalwadi lake area at the Ujani wetland is a major site of avifauna, mainly migratory. Plateau

of Flowers; **The Kaas plateau is a UNESCO World Natural Heritage Site** and a famous tourism spot for its colorful flowering species (botanically known as herbaceous), many of which are endemic. Many species of plants and animals are endemic to Maharashtra .

National Parks

They are the areas that are set by the government to conserve the natural environment.”

Their boundaries are fixed and defined. The main objective of a national park is to protect the natural environment of the area and biodiversity conservation. Here, no human activity is allowed. Grazing of livestock and private tenurial rights are not permitted here. Species mentioned in the Schedules of the Wildlife Act are not allowed to be hunted or captured. No person shall destroy, remove, or exploit any wildlife from a National Park or destroy or damage the habitat of any wild animal or deprive any wild animal of its habitat within a national park.

National parks **can be declared both by the Central Government and State governments.** No alteration of the boundaries of a national park shall be made except on a resolution passed by the State Legislature.

List of National Parks in Maharashtra.

S. No.	Name of National Park	Year of Notification	Total Area(km ²)
1	Chandoli National Park	2004	317.67
2	Gugamal National Park	1975	361.28
3	Nawegaon National Park	1975	133.88
4	Pench National Park	1975	257.26
5	Sanjay Gandhi (Borivilli) National Park	1983	86.96
6	Tadoba National Park	1955	116.55



pic- <https://mahaforest.gov.in>

1. The Chandoli National Park (CNP)

The Chandoli National Park is a natural World Heritage Site and is spread over Satara, Kolhapur and Sangli Districts of Maharashtra. It covers an area of 317.67 square kilometres. The historical places of the park include the 17th century Chatrapati Shivaji Maharaj Forts, Prachitgad and Bhairavgad, of the Maratha kings Shivaji and his son Sambhaji. It is home to tigers, Indian leopards, Indian bison, leopard cats, sloth bears, mouse-deer, sloth-bears and black-buck. The main flora of this National Park includes moist deciduous forest and the dwarf evergreen forests. Its fauna consists of iron-wood, jamun, pisa, fig, olea, katak, kanjal, kokum, phanasi-false, Indian laural, amla, umber and grasses.

2. Gugamal National Park

The hilly terrain of Amravati District of Maharashtra, Gugamal National Park, located in the Chikhaldara and Dharni Tehsils, spreads over a whopping 1673.93 square kilometres. As a part of the Melghat Tiger Reserve. It protects a large number of fauna and flora, especially leopard, wolf, fox, wild cats, antelopes, deers, neelgai, and numerous birds and flora.

3. Navegaon National Park

Navegaon National Park in the Gondia District (Easternmost part of Maharashtra) is a forest reserve nestled in the lush green hills of Navegaon. Built in the 1800s, the park also has

a serene lake and a watchtower just adjacent to it, natural sceneries and marvel at the sight of exotic wildlife: a bird sanctuary, a deer park, and three lovely gardens. The bird sanctuary, known as Dr Salim Ali Bird Sanctuary houses almost 65% of the bird species that are found in the state of Maharashtra. Flocks of stunning migratory birds visit the park every winter and unwind by the lake – an eye-catching view. The national park also boasts diverse types of flora – ranging from moist to dry deciduous forest. A unique experience here is staying in tree houses (like in a bird's nest), going on a jungle safari in the dense forest, and sailing boats in the pristine lake. Navegaon National Park is famous for Tiger, Panther, Jungle Cat, Jackal, Bisons, Sambars, Nilgais, Chitals, Wild boars, Sloth Bears, and Wild Dogs.

4. Pench National Park

It derives its name from the Pench River that flows through the national park from north to south dividing the park into almost two equal parts. It was declared as a sanctuary in 1977 but raised to the status of national park in 1983. Later in 1992, it was declared as a Tiger Reserve. The main fauna of this park includes tiger, leopard, chital, sambhar, nilgai, wild boar, jackal, sloth bear, wild dog, jungle cat, fox.

5. Sanjay Gandhi (Borivilli) National Park

The Sanjay Gandhi National Park Squeezed between the two suburbs of Mumbai and Thane, previously known as the Borivali National Park covers approximately 20% of Mumbai's geographical area and is home to a staggering thirteen hundred species of flora and more than five hundred species of fauna respectively. Covering an area of 104 square kilometers. The Sanjay Gandhi National Park is known for its evergreen dense forests, bird population, butterflies, and the small population of tigers.

6. Tadoba National Park

Tadoba national park is located in Chandrapur district of Maharashtra. The park was declared a

Project Tiger reserve in the year 1993. Tadoba is famous for Tadoba national park, Tadoba-Andhari Tiger Reserve, Tadoba lake, Erai dam, Moharli & Khosla village.

Besides the tigers, you will also get to witness various other wild species like leopards, gaur, wild dogs, sloth bears, jungle cats, hyenas, sambar, cheetah, nilgai and barking deer. swampy crocodiles and migratory ducks around the Tadoba Lake. The Tadoba Lake is located at the center of the Tadoba-Andhari tiger reserve. hawk eagle, black-hooded oriole, monarch flycatcher, grey-hornbill and golden-oriole.



Maharashtra Wildlife Sanctuaries

The Wildlife (Protection) Act, 1972 provided for the declaration of certain areas by the State government as wildlife sanctuaries if the area was thought to be of adequate ecological, geomorphological and natural significance.

Koyna Wildlife Sanctuary, Radhanagari Bison Sanctuary, Nagzira Wildlife Sanctuary, Melghat Wildlife Sanctuary, Bhima Shankar Wildlife sanctuary, Karnala Bird Sanctuary, Great Indian Bustard wildlife sanctuary, Phansad bird sanctuary, Gautala wildlife sanctuary.

World Heritage Site by UNESCO, the **Radhanagari Bison Sanctuary** is the home to Indian Bison. The Sanctuary which is spread over 351 sq. km is home to a wide range of flora and fauna.

The **Melghat Sanctuary** The name Melghat means 'meeting the Ghats' as Melghat wildlife sanctuary meets the Western Ghats of India, is also the home to some of the endangered species; Forest Owlet is an example of such

endangered species, home to many flora and fauna. Surrounded by the Satpura range and the Tapti River, the Wildlife sanctuary is famous as a tiger reserve.

Bhima Shankar wildlife sanctuary Located in the Western Ghats of India. The Sanctuary is also recognized as the biodiversity hotspots in the world. Along with mammals like barking deer, wild boar, langurs; the sanctuary also preserves many reptiles, insects, amphibians and many types of butterflies.

Karnala Bird Sanctuary Nilgiri Wood pigeon, woodpeckers, Malabar Grey Hornbill, Green Pigeon are some of the famous birds in the sanctuary.

The Phansad Bird sanctuary The bird sanctuary which is located near Kashid Beach, is home to over 279 different species of fauna and 720 species of flora.

The Rehekuri Blackbuck Sanctuary which is located in the state of Maharashtra is dedicated to the Indian antelope. The blackbuck can be mostly found in the Indian grassy plains.

The Bhigwan Bird Sanctuary which is situated in the backwater of Ujani Dam in Maharashtra, this place unique is here you can spot flamingos.

The Bhamragarh Wildlife Sanctuary, Bhandara is one of the famous Maharashtra wildlife sanctuaries. The sanctuary is home to the leopard, wild boar, peacock, and all the other wildlife.

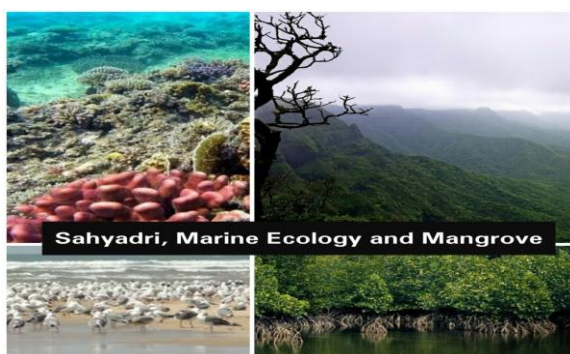
Kalsubai Harishchandragad Wildlife Sanctuary. Located in a height of 1646 m from the sea level, the sanctuary is a heaven for the wildlife and the birds.

The Lonar Wildlife Sanctuary is one of the smaller wildlife sanctuaries in Maharashtra. The sanctuary now includes The Lonar Lake, the world's only saltwater lake in basaltic rock

The Malvan Marine Wildlife Sanctuary is the only Marine Wildlife Sanctuary in Maharashtra. It is very rich in coral and marine life. Sea

Anemones, Pearl Oysters, Seaweed, Mangroves, and Corals are found aplenty along with over 30 species. The Maharashtra government has declared an area at Amboli in Western ghats in Sindhudurg district, where a rare freshwater fish species was discovered, as a biodiversity heritage site.

Western Ghats- This mountain range in Maharashtra is known as Sahyadri. It is incredible hotspots of biodiversity. The major characteristics features are the climate, topography, ecology, flora and fauna.



Sahyadri, Marine Ecology and Mangrove

Pic-<https://mahaforest.gov.in>

Mangrove cover in Maharashtra

Maharashtra's districts have mangrove cover: Mumbai city, Mumbai suburbs, Raigarh, Ratnagiri, Sindhudurg and Thane. Raigarh has the largest mangrove cover at 6,200 hectares. Mangroves are a salt-tolerant plant community found in tropical and sub-tropical regions that receive high rainfall. Increasing industrial activity in coastal areas are negatively affecting mangrove forests, making their conservation essential, Maharashtra has notified 15,087.6 hectares of mangroves across the state as reserved forest.

Flora of Maharashtra: The national parks of Maharashtra are full of variety of plant species that include Jamun, Palas, Shisam, Kate sawar, Neem, Teak, Dhawada, Kalam, Saja/Ain, Bija, Shirish, Mango, Acacia spp, Awala, Kadamba, Moha, Acacia spp, Terminalia spp, Hedua, Ficus spp and many more, About 17% of this state is

covered by the thick forests consisting of deciduous plants.

Biosphere Reserves: A biosphere reserve is an area of land or water that is protected by law in order to support the conservation of ecosystems, as well as the sustainability of mankind's impact on the environment. biosphere reserves are traditionally organized into 3 interrelated zones.

- the core area,
- the buffer zone, and
- a transition zone or 'area of cooperation.

UNESCO World Heritage Sites (Natural, Cultural and Mixed) – Places listed by the United Nations Educational, Scientific and Cultural Organization as of special cultural or physical significance.

Specialized projects of India

1. Project Tiger 1973
2. Operation Crocodile 1975
3. Project Rhinoceros 1987
4. Project Snow Leopard
5. Project Elephant 1988

According to the data, Maharashtra ranked fourth in the country among states with maximum encroachment, after Madhya Pradesh, Assam, and Odisha.604 sqkm of forest cover was under encroachment in Maharashtra in 2019 With increasing population, industrialization and urbanization in Maharashtra, there is an increase in threats to biodiversity.Of the 61,579sqkm total forest cover in the state, 604sqkm was under encroachment in Maharashtra in 2019

The Maharashtra forest department's district-wise data showed that Dhule had the highest forest area under encroachment, while Thane and Mumbai forest zones had maximum encroachment cases.Aarey Colony in Mumbai is seeing similar tree cutting incidents as a metro car shed is all set to be built there. These anthropogenic activities are responsible for habitat modifications.

Human-Wildlife conflicts and impacts had been seen in many parts of Maharashtra. Human-Elephant Conflicts and impacts, the main damage to agriculture crops were reported from Sindhudurg and Kolhapur districts of Maharashtra.

The use of plastic in pristine habitats has polluted many tourist spots in the western ghats and other protected areas. Additionally, forests of Gadchiroli and Gondia districts are identified as extremely fire-prone forest areas as per the India state of forest report- 2019.

CONCLUSION :

Forests play an important role in providing different types of habitats for the growth of biodiversity. The different types of vegetation patterns like trees, shrubs and herbs provide significant parameters for wild animal diversity. The habitat of rich biodiversity in Maharashtra. Hence, it is necessary to protect and maintain the biodiversity in the area. The present investigation was undertaken to enlist, identify and quantity different species of mammals, reptiles and birds. In the recent years the awareness regarding conservation of flora and fauna among the local community and in peoples residing in the forest has helped in a large extent in protecting the forest of this area. conservation programme in Western Ghats, i.e. eco-restoration of sacred groves, revival of traditional forest conservation practices, conservation assessment of rare medicinal

plants, the great hornbill- a flagship species for forest conservation instead of destroying forests for various uses. Conservation of biological diversity leads to conservation of essential ecological diversity to preserve the continuity of food chains. Sustainable development stresses on economic development along with the object of conservation of environment. Biodiversity of an ecosystem is a vital issue of an economy. There is a need of proper conservation approaches for protecting the rich biodiversity of Maharashtra.

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