



E-ISSN: 2706-9591
P-ISSN: 2706-9583
www.tourismjournal.net
IJTHM 2025; 7(1): 19-27
Received: 12-10-2024
Accepted: 15-11-2024

Narendra G Chandewar
Deputy General Manager,
MEDB, Forest Department,
Government of Maharashtra,
Nagpur, Maharashtra, India

Flora, fauna, and eco-futures: The promise of ecotourism in Maharashtra state, India

Narendra G Chandewar

DOI: <https://doi.org/10.22271/27069583.2025.v7.i1a.120>

Abstract

The state of Maharashtra, which is located on the western coast of India, is home to a diverse range of habitats, ranging from calm beaches and marshes to green forests and high mountains. Due to the state's exceptional biodiversity, which is home to a wide variety of flora and fauna, ecotourism in the state has a great deal of potential. Ecotourism, often known as responsible tourism, is a kind of tourism that encourages environmental education, provides economic assistance to local people, and contributes to conservation efforts. Ecotourism is a win-win situation for the economy and biodiversity of Maharashtra since the state has the ideal mix of natural beauty, rich history, and extensive cultural inheritance. In this paper, the potential of ecotourism in Maharashtra is explored, with a particular focus on the ways in which it has the ability to contribute to the conservation of the environment and the empowerment of neighborhood groups. The state's biodiversity hotspots, like as the Western Ghats, which are a UNESCO World Heritage site, are emphasized, as are the protected species and ecosystems that are found inside the state. The most significant ecotourism initiatives in the state are investigated in this research, along with the ways in which these programs manage to strike a balance between the conservation of the environment and the growth of commercial tourism. It is possible for Maharashtra to develop ecotourism models that are beneficial to local communities and the environment, while also offering employment opportunities for inhabitants. This may be accomplished by fostering cooperation between citizens, tour operators, and government organizations. A number of advantages and disadvantages are associated with ecotourism. On the one hand, it helps promote awareness of the environment and contributes to the funding of conservation activities. On the other side, it might result in excessive tourism, the destruction of habitats, and the disruption of cultural practices. This paper tackles these issues and provides potential solutions to make ecotourism in Maharashtra sustainable. The essay places a focus on community participation, severe rules, and long-term success over the course of the discussion. According to the authors of this research, ecotourism has the potential to transform the natural resources of Maharashtra into a long-term asset for the state's economy, culture, and ecology.

Keywords: Flora, fauna, eco-futures, Maharashtra, biodiversity, eco-tourism

Introduction

The Indian state of Maharashtra, which is situated on the western coast to central part of the country, is home to a diverse range of environments, many historical landmarks, and an abundance of animals. As a result of its varied topography, which includes green forests, gorgeous beaches, and breathtaking mountain ranges, this place is an excellent choice for ecotourism. The state is home to a diverse range of plant and animal life, including some native species and it is home to a number of national parks and wildlife refuges that are dispersed across the state. The Sahyadri mountain range, which is a part of the Western Ghats, is both a UNESCO World Heritage site and a biodiversity hotspot. This serves to further underline the ecological significance of the state of Maharashtra. A wonderful potential to promote ecotourism as a method of attaining twin goals—namely, increasing the economy and safeguarding the environment—is presented by the immense natural resources that the state has. The term "ecotourism" refers to a kind of responsible tourism that puts an emphasis on visiting natural areas in a manner that contributes to the preservation of such resources, provides assistance to local people, and provides an interpretation of the cultural and environmental history of the locations that are visited. An abundance of natural history may be better understood and enjoyed via ecotourism, which can also contribute to an increase in environmental awareness. The state of Maharashtra is home to a richness of natural history (Campbell Lisa M, 2019) ^[1]. When it comes to ecotourism, Maharashtra is an excellent destination due to the fact that it has a wide variety of habitats, an abundance of

Corresponding Author:
Narendra G Chandewar
Deputy General Manager,
MEDB, Forest Department,
Government of Maharashtra,
Nagpur, Maharashtra, India

wildlife, and stunning landscape. All of these factors contribute to the preservation of these irreplaceable resources while also bringing people closer to nature.

Since a long time ago, Maharashtra has recognised the significance of ecotourism and the good effects that it may have on the economies and ecosystems of the surrounding areas. It is now possible for local populations to participate in ecotourism in greater numbers than ever before, due to a variety of initiatives that are sponsored by both the government and groups that are not-for-profit. These sensitive ecosystems and animal habitats are essential to the ecological future of the state, and the efforts being made to preserve them are aimed at achieving a balance between the two conditions. The practice of ecotourism in Maharashtra is an excellent opportunity for individuals to connect with the natural world while also having a positive impact on the economy, in terms of the generation of jobs, and in terms of the conservation efforts that are being undertaken.

It is essential for the flourishing tourism industry in Maharashtra to find a balance that allows for both expansion and preservation of the environment (Cater, 2013) ^[2]. The remarkable biodiversity of the state may serve as the foundation for the development of new ecotourism models that place a focus on the preservation of both cultural and natural heritage. Explore the possibilities that ecotourism presents in the state of Maharashtra in this chapter. Gain an understanding of how to protect biodiversity, improve local lives, and promote sustainable development by capitalizing on the natural heritage of the state. The Indian state of Maharashtra has the potential to become the leader in ecotourism provided it is willing to devote the necessary amount of time to gaining an understanding of the opportunities and challenges that are associated with the business.

Flora and Fauna

Flora refers to all plant life and fauna refers to all animal life. That's about it. Explore the origins and etymologies of these phrases as we delve further into them. As per Wildlife (Protection) Act, 1972 (Amend-2022) flora and fauna comes under definition of wildlife under section 2(37) "*wild life*" includes any animal, aquatic or land vegetation which forms part of any habitat.

Flora Meaning

Flora literally translates to "Goddess of the Flower" in Latin. A region's flora is the collection of plant species present there. This term encompasses the whole flora. Many variables are used to classify and distinguish flora. Among them, their native habitat is the most favourable. Not all plants thrive in the same environments; some thrive in water, others in mountainous terrain, and some are native only to a certain place. In addition, their adaptations vary depending on where they are grown. Cactus plants, for instance, are native to deserts. Adaptations like as prickles or altered leaves help them save water and ward off predators. Plants grown by humans for their own benefit make up what is known as agricultural flora. Horticulture refers to the science and art of cultivating plants for their aesthetic value, particularly flowers.

Fauna Meaning

Species of animals that are native to a certain area are called flora. The origin of the term is a topic of much debate. A

goddess of fertility, Fauna (or "Faunus" in Latin) is revered in Roman mythology. The word "Fauns," meaning "Forest spirits," is another possible origin. The animal world is home to many different kinds of animals. As a result, wildlife taxonomy is much more involved than plant taxonomy. Hence, for the sake of simplicity in categorisation;

- Avifauna is the scientific term for birds.
- Uses the Pesci Fauna fishing method.
- Microorganisms, such as viruses and bacteria, are often referred to as Microfauna in the animal world.
- Cryptofauna refers to all species of animals that have not yet been identified.

Cryptofauna, sometimes known as cryptids, are creatures that have evaded scientific efforts to confirm their existence from the beginning of recorded history. While the majority of these claims are unfounded urban legends, a small number have, up until very recently, been supported by hard scientific data. Massive squids are one example. Various accounts from sailors' diaries and logbooks attest to sightings of this cryptid dating back to the 17th and 18th centuries. Until a living specimen became trapped in fishing net in the 21st century, there was no clear evidence (Diaz, 2017) ^[4]. After bringing it in for examination, experts determined it to be a new species of squid. There has been incontestable evidence of gigantic squid existence ever since. The diversity of life on Earth is what makes it so stunning. They provide a variety of resources that other organisms rely on and even exploit. Therefore, protecting wildlife and plants is crucial for the planet's continued existence. The government has established many institutions to protect plants and animals, including biosphere reserves, national parks, zoos, and sanctuaries. Another case in point is the Tiger project, an initiative by the Indian government to prevent the extinction of tigers in the nation.

Importance of Flora and Fauna

There are many reasons why the plant and animal life is significant:

Maintains Ecological Balance

Animals and plants play a crucial role in human survival. In order to breathe, animals rely on the oxygen released by plants. The carbon dioxide that the plants use in photosynthesis is then released into the atmosphere by the fauna. Animals and plants provide humans with several advantages, including food and medicine. In order to keep their numbers in check, animals practise predatory hunting on a variety of plant and animal species. Fertilizer may be made from animal droppings. When animals decompose, the minerals they contained become a food source for living things.

Aesthetic Value

Aesthetic value of Earth is enhanced by the plants and wildlife that inhabit it. For the scenic splendour of monuments, people go to various biosphere reserves, national parks, zoos, woodlands, botanical gardens, etc. This clarifies the role that plants and animals have in our daily lives (Patil D, 2013) ^[5].

Expansion of Local Economies

Local businesses benefit from Flora and Fauna because of the tourists that visit. About \$50 million flows into Brazil's

coffers from visitors and researchers drawn to the Amazon's biodiversity and animals. As a result of their diverse wildlife and plant life, the Caribbean, Indonesia, and Panama are popular tourist destinations that draw in millions of visitors every year.

Flora and Fauna of India

Numerous plant and animal species make up India's rich flora and wildlife. India is home to a diverse array of wildlife, including 500 species of mammals, 2,000 bird species, 30,000 insect species, and many fish, amphibian, and reptile variations. Common animals found in the nation include elephants, lions, bison, rhinos, and Royal Bengal tigers. As for the country's flora, India is home to a wide range of plant and animal species, including oaks, rhododendrons, pine, spruce, deodar, laurels, maples, bamboos, and tall grasses.

Objectives

1. Assess Maharashtra's biodiversity conservation and management impact from eco-tourism.
2. Discover Maharashtra's ecosystems and biodiversity-friendly tourism destinations.

Literature Review

Ramdas Lad (2018), The ecotourism business is causing waves all over the world since it is a segment of the tourism industry that is both passionately discussed and fast increasing. Ecotourism is a kind of tourism that makes it possible for tourists to get up close and personal with nature while simultaneously reducing the amount of damage they do to the ecology of the area. Its principal purpose is to increase the awareness of visitors about the need of environmental conservation in order to enable the development of both the environment and the economy in the region. Because of its beautiful scenery, rich history, wealth of flora and fauna, colourful festivals, diversified food, traditional handlooms and crafts, and, of course, its heavy monsoon rains, the state of Maharashtra has been a popular tourist destination for a prolonged period of time. The state of Maharashtra may offer visitors a lot of things to enjoy. The objective of the researcher is to bring attention to the potential role that tourism may play in fostering economic development. Moreover, it makes an attempt to investigate the manner in which tourists have been visiting the state of Maharashtra in recent times. In addition to this, it provides recommendations for boosting the tourism industry in Maharashtra as a means of fostering economic growth.

P.S. Kamble (2024), When it comes to ethical travel, ecotourism is a kind of travel that places a focus on gaining knowledge about and safeguarding local cultures and ecosystems. As an example, the Indian state of Maharashtra is in the process of building ecotourism hotspots due to the immense biodiversity that it has (which spans 15,732 square kilometres). Rapid urbanisation has led to the creation of protected areas for endangered and rare species. This has resulted in increased economic development as a consequence of the creation of employment and increased awareness of the issue. Nevertheless, the rapid urbanisation of hill stations such as Mahabaleshwar and Panchgani has led to the development of tourism practices that are detrimental to the environment. These practices include the removal of natural vegetation, the cutting down of trees for

fuel wood, the increased demand for water and electrical supplies, pollution, congestion, and trash. An increase in the number of experience-based tourism initiatives in Maharashtra is being seen. These projects provide tourists with a flavour of the local culture and way of life. In 2021, the Ministry of Environment, Forests, and Climate Change (MOEFCC) announced legislation with the intention of promoting "low impact nature tourism" in ecotourism zones and forest preserves.

Hall (2000) ^[9], Numerous individuals discover that travel enables them to access an infinite number of opportunities for both enjoyment and financial benefit. One of the most revolutionary shifts that has occurred in the tourist business in recent times is the possibility to visit areas for life while also taking care of the residents and the destinations themselves. One of the goals that ecotourism contributes to the achievement of is sustainable development, which involves both national and human progress in all aspects with equal importance. One way that ecotourism helps to the conservation of the environment is by enhancing the quality of life in the surrounding areas and among the local population. Additionally, it includes the process of acquiring knowledge about the history of the location and the preservation of its historical monuments. Within the scope of this article, we investigate ecotourism from the point of view of its relevance and need. Data from secondary sources, such as books and journals, were gathered from a wide variety of internet venues.

Joshi (2014) ^[12], Getting to view the many kinds of animals that can be found all over the globe is one of the most enjoyable aspects of travelling. It is very necessary in order to maintain the health of an ecosystem. Over the course of the past several decades, the rapid expansion of urban areas has had a detrimental effect on the biodiversity of the world. There is a high focus placed on the preservation of uncommon and endangered plant and animal species, and the construction of protected areas is one approach that may be used to accomplish this goal. A few examples of the different habitats that may be found in Maharashtra are evergreen forests, grasslands, wetlands, and forests. Other examples include meadows and beaches. The Kaas, which are located in the Western Ghats, have been recognised as a UNESCO World Heritage Site, which is a tribute to the natural splendour of the region. It is especially challenging for developing countries to safeguard rare and endangered plant and animal species because of the inadequate implementation of laws and regulations in such countries. The practice of ecotourism, which is an abbreviation for "sustainable nature-based tourism," is an essential component in the effort to preserve endangered species. A portion of it is tourism that is in harmony with the natural environment. In addition to this, it provides visitors with the opportunity to see and gain knowledge on the remarkable natural phenomena. Additionally, the need of conserving local customs and biodiversity is highlighted due to its crucial nature. One method in which ecotourism helps to the expansion of the area economy is via the establishment of new employment opportunities. The practice of ecotourism, which not only increases awareness but also produces revenue, makes it feasible to protect endangered species. This study's objective is to evaluate the impact that ecotourism plays in the conservation efforts that are being made in Maharashtra to preserve ecological variety. It is necessary to do extensive study in order to get further

knowledge on the strain and the negative impacts on biodiversity. In light of the present circumstances, ecotourism is a viable option for fostering sustainable tourism growth that is founded on the ability of the environment to bear such development.

Methodology

This research on ecotourism relies on previously collected information. Articles, studies, programs, and plans from the Maharashtra and Indian governments as well as other relevant sources provided the data. The websites of the Indian and Maharashtra governments, Maharashtra Ecotourism Development Board, Maharashtra State Biodiversity Board, Maharashtra Tourism Development Corporation, and the Ministry of Environment, Forest and Climate Change (MoEFCC) were consulted for some of the data. In order to learn about the environmental situation, a visit to a certain location has been planned. Biodiversity, or the abundance and variety of a region's flora and fauna, is an important concept. It may be seen in ecosystems including forests, grasslands, lakes, rivers, marshes, mountains, and hills, and it has a direct relationship with topography, climate, and patterns of vegetation. A wide variety of aquatic and terrestrial plant and animal species may be found in Maharashtra. Natural fish and coral nurseries may be found along the coast of Maharashtra (G. Poyya, 2008) [7, 20]. Mangrove forests mitigate the destructive power of tidal cyclonic storms and shield coastal areas from erosion caused by the waves. Fishing, beekeeping, fuel wood, lumber and other forest products are only a few examples of

how biodiversity supports millions of people's daily lives. Maharashtra is home to a diverse and abundant ecology due to its geographical position. Ecotourism now relies heavily on ecosystems as a source of biodiversity.

Worth Noting Maharashtra's Biodiversity

With an area of 307,713 sq. km, Maharashtra is situated in western to central India. In terms of ecotourism, Maharashtra's geography is a plus. On average, the Western Ghats are 12,000 meters high and run parallel to the shore. The Maharashtra Sahayadri range is topped by Kalsubai, a mountain close to Nasik. The flat Konkan shoreline, which is 50-80 km wide, is located west of these hills. The level Deccan plateau is to the east of the Western Ghats. One of India's three watersheds, the Western Ghats is the source of water for several rivers in the southern region. The Godawari and Krishna rivers combine to create one of India's largest river basins, which empties into the Bay of Bengal to the east. Maharashtra is home to many national parks, wildlife sanctuaries, and project tiger reserves, all with the goal of preserving the region's abundant biodiversity, in addition to 52 wildlife sanctuaries and 6 tiger reserves, there are 6 national parks and 28 Conservation Reserves. The peculiarities of biodiversity that give birth to one-of-a-kind tourist attractions are detailed in the following table. The Sahyadri Mountains are located in Maharashtra and are part of the Western Ghats (Higham, 2001) [10]. Such areas are extraordinary biodiversity hotspots. Characteristics such as weather, terrain, ecology, vegetation, and animals stand out.

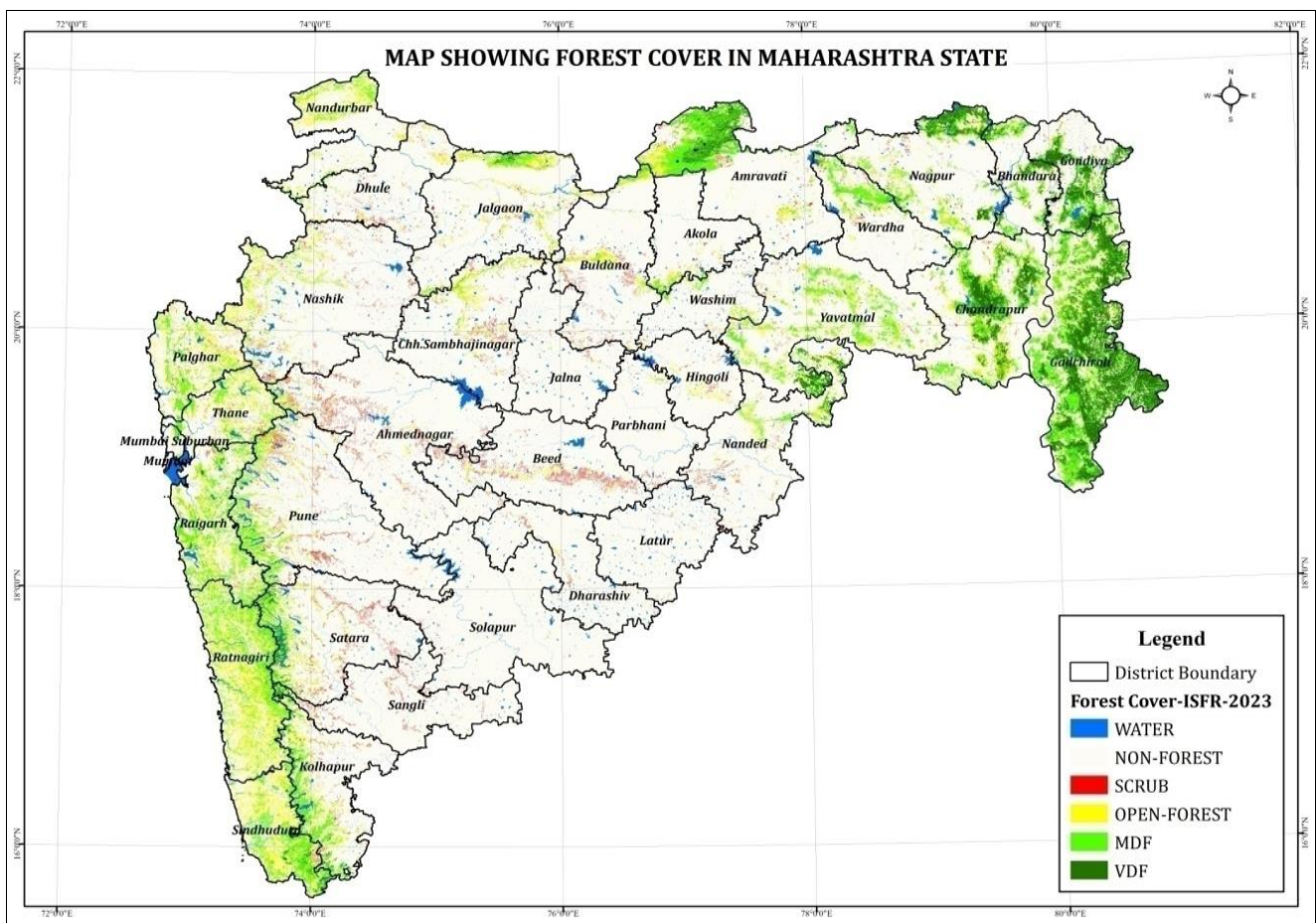


Fig 1: Map showing Forest Cover in Maharashtra State.

Table 1: Forest Area with percentage to Geographical Area of the Maharashtra State

Sr. No.	Administrative Agency	Reserve Forest	Protected Forest	Unclass Forest	Total Forest Area	Percentage of Total Forest Area of State to Geographical Area
1A	Forest Department	47011.66	6159.54	2654.84	55826.04	18.14
1B	Private Forest	1185.02	--	--	1185.02	0.39
	Total FD	48196.68	6159.54	2654.84	57011.06	18.53
2	FDCM	3418.38	127.61	2.37	3548.36	1.15
3	Revenue Department	771.31	35.92	626.11	1433.34	0.47
	Total Forest Area in Maharashtra State	52386.37	6323.07	3283.32	61992.76	20.15
	Percentage to Forest Area	84.50	10.20	5.30	100.00	20.15
	Percentage to Geographical Area	17.025	2.0549	1.067	--	--

Table 2: Forest Area in Administrative Region

Sr. No.	Administrative Region	Forest Area (Sq. Km.)	Geographical Area (Sq. Km.)	Percentage to Geographical Area
1	Western Maharashtra	24771.85	145496.00	17.03
2	Marathwada	3177.19	64813.00	4.90
3	Vidarbha	34043.72	97404.00	34.95
	Total	61992.76	307713.00	20.15

Table 3: Protected Area in Maharashtra State

Sr. No.	Protected Area Details	Number's	Area (Sq. Km.)
1	Sanctuaries	52	7912.9181
2	National Park	06	1269.27
3	Conservation Reserves	28	1877.91
	Total	84	11060.0981

Table 4: Tiger Reserve in Maharashtra State

Sr. No.	Name of Tiger Reserve	Notification Date		Core Area (Sq. km.)	Buffer Area (Sq. Km.)	Total Area (Sq. Km.)
		Core	Buffer			
1	Tadoba-Andhari Tiger Reserve	27/12/07	05/05/10	625.82	1101.77	1727.59
2	Pench Tiger Reserve	27/12/07	29/09/10	430.12	311.10	741.22
3	Melghat Tiger Reserve	27/12/07	29/09/10	1500.49	1268.04	2768.53
4	Sanhyandri Tiger Reserve	21/08/12	21/08/12	511.87	565.45	1077.32
5	Navegaon-Nagzira Tiger Reserve	12/12/13	07/09/16	653.67	1241.27	1894.94
6	Bor Tiger Reserve	16/08/14	04/12/15	138.12	678.14	816.26

The Western Ghats in Maharashtra are home to a wide range of indigenous plant and animal species; these mountains span 14081 square kilometers and are protected by one national park and nine wildlife sanctuaries. Historically, these PAs were located at too great a distance for development activities to penetrate. But these PAs' environmentally delicate regions and adjacent places are now easily accessible because to better road networks and connectivity in the previous 20 years. The Western Ghats

are also under grave danger due to modernisation. In addition to the existing fragmentation, highways, trains, dams, and neo-urban communities split the woods in many regions. Intense grazing, forest fires to make way for farms, mining, industrial projects, tourism, unsustainable resource usage, and industrialization are among major factors threatening the Western Ghats' biodiversity. It is worth noting that in man

Table 5: Faunal Diversity

Sr. No.	Name of Group	Order	Families	Genera	Species
Vertebrata					
1	Mammalia	13	35	79	129
2	Aves	20	86	271	556
3	Reptilia	3	22	65	117
4	Amphibia	2	9	22	53
5	Freshwater Fishes	8	28	89	215
6	Marine and Estuarine Fishes	27	131	319	653
Invertebrata					
1	Vertebrata	102	489	1888	3917
	Total	175	800	2733	5640

(Sources: website of MSBB)

The Maharashtra Biodiversity: A Wonder to Behold
Tourists from all over the world go to these unique habitats to see the rich biodiversity. Excellent and diverse resources

are supported by the environment of Maharashtra. Among the many animal species found in Maharashtra are sambar, crocodiles, bison, neelgai, wild deer, and unique migratory

birds. The percentage of mammals (27%) and birds (42%), as well as reptiles (22%), that call the state home in India is high (GoM, 2003). There are 460 different species of birds, 85 different kinds of animals, and 3,500 different types of blooming plants throughout the state. Matheran and Mahabaleshwar's verdant forests at sunrise and sunset, Tadoba's tiger migration, and Bhigwan's spectacular migratory bird displays are among the main draws for ecotourists visiting this region.

The variety of life on Earth might be better appreciated at various times of year. Surrounding the gushing waterfall in the Malshej Ghats in the Western Ghats during the rainy season are verdant, young leaves that seem bursting with

vitality (Hodur, 2005) ^[11]. Leisure travelers may enjoy water sports, Konkani cuisine, and the majesty of the Arabian Sea as they explore coastal locations and learn about the marine life there. Thousands of kinds of indigenous flowers blossom on the Kaas plateau as the rainy season comes to a close. Every winter, the water bodies become a haven for birds and colorful ducks, giving birdwatchers the opportunity to immerse themselves in avian paradise. Residents are compelled to visit the hill stations situated in the Sahyadri mountain ranges due to the scorching summer weather. Biodiversity includes the adventures and activities that go along with all of them.

Table 6: Wonders of Maharashtra's Biodiversity

Description	Comment	Major destinations
Coastal Area	Western coast, Arabian sea, Unspoiled virgin beaches	Mumbai, Konkan coast Ganapatipule, Tarkarli, Dive agar, Harihar Eshwar, Malvan,
Caves	caves with religious significance, and caves in the hills	Ajanta, Ellora, Elephanta, Bhokardan, Ambivili, Dhak Bahiri
Forts	Known for its rich history and the land of Chhatrapati Shivaji Maharaj, the forts in Maharashtra	Raigad Fort, Shivneri Fort, Sinhagad Fort, Torna Fort, Harishchandragad Fort, Pratapgad Fort, Purandar Fort, Sindhudurg Fort, Janjira Fort, Lohagad Fort and many more.
Climate	Cool and dry during hot season	Hill stations: Mahteran, Mahabaleshwar, Chikhaldara, Panchgani
Urban Forest/Nature Park	Urban area Garden, Nature parks, Sub-Park	Visapur Botanical garden, Oxygen Park, Amaravati, Ranichi Bag etc
Landscape	Picturesque Landscape famous for flora and fauna, religious significance	Glory of Forest, Alapalli, Deorai,
Forest	Reserve Forest, Protected Forest (Evergreen, Deciduous Forest, Mangroves etc)	Conservation Reserve, Territorial Forest area safari ex. Jogapur safari, Karawa Safari, Gurvala Safari.
Wildlife	Tigers, Leopards, Deer, Great Indian Bustard	Wildlife Sanctuaries, National Parks TATR, MTR, PTR, NNTR, BTR and SGNP, 52 sanctuaries etc (Total 84 Protected Areas)
Marine Aquatic ecosystem	Lonar Crater, Lake, Talao	Lonar Crater, Nandur Madhmeshwar, Dhannur Talao, Dams-Jayakawadi, Back water area etc
Culture	Specific to each region	Fairs and Festival Regional cuisine Ex. Gadchiroli- Gond Tribe culture

(Sources: Website of MEDB and MSBB)

The mountainous terrain of East Maharashtra is home to deciduous teak forests that have been designated as Tiger Reserves and significant Protected Areas. Melghat, Pench, Navegaon, Tadoba, and Nagzera are all of them. Patches of forest, like Gadchiroli's "Glory of Allapalli," contain towering trees that dwarf our most fantastical conceptions of what old, massive woods would have looked like. The old, gnarled and fluted tree trunks and wild, buttressed roots send the trees soaring into the sky (Joshi, 2014) ^[12]. Their massive size transports the observer to a bygone era of primitive living in the great outdoors. One of India's most wildlife-rich locations was the Satpudas in the Central Highlands. Massive herds of gaur, sambar, and cheetal, as well as tigers, thrived there. Despite the fact that these mountain ranges were formerly physically connected by an old mountainous linkage that vanished in a distant prehistoric past, the flora and fauna exhibit striking relationships to species related to the Eastern Himalayas and the Western Ghats. There are still patches of suitable habitat for animals in both the drier eastern sal woods and the wetter teak forests. Fragmentation poses a hazard to the fish species of the Narmada River, which has been significantly changed by dams and changes in landuse. Incredible artwork depicting a hunter-gatherer and agricultural way of

life has been discovered here, made by ancient people who lived in cave shelters in the hills (Manhas, 2012) ^[13].

The illustrations show tigers with bows and arrows hunting herbivores for food, such as deer. Even now, tribal culture is shaped by its creative forms. Contemporary indigenous peoples who inhabit and cultivate tiny plots of land inside the forest across the impassable mountainous terrain include the Korkus of Melghat, the Kokanas in the west, and the Bhils and Gonds in the east. The impact of "modernisation" has been devastating to their distinct cultures, languages, dress standards, artefacts, dance, and agricultural skills.

Ecotourism in Maharashtra

Maharashtra - Nation within a Nation is the third largest state in the country, both in terms of population and area. The state capital city of Mumbai, one of the largest and most vibrant cities in the world is also the financial and entertainment capital of the country. According to the National Forest Policy of 1988 and the Maharashtra Forest Policy of 2008, 33% of the total geographical area of the state should be under forest cover. Maharashtra's total geographical area is 307,713 square kilometers. However, as per the 2023-24 report, the forest area is 61,992.76 square kilometers, which constitutes 20.15% of the total geographical area.

Maharashtra is one of the few regions in the world that offers a diverse array of destinations for tourists. The state boasts a long coastline of 720 kilometers along the lush green Konkan region, providing stunning beaches and coastal experiences. The Western Ghats and the Sahyadri mountain range feature picturesque hill stations and serene water reservoirs, surrounded by semi-evergreen and deciduous forests. Additionally, the Vidarbha region, with its dense forests, is home to several wildlife sanctuaries and nature parks, offering rich biodiversity and unique wildlife experiences:

Konkan Region

The Konkan region is celebrated for its coastal beauty, featuring pristine beaches like Ganpatipule, Tarkarli, and Alibaug, which offer water sports, dolphin watching, and serene sunsets. This coastline is also rich in marine life, making it a prime spot for snorkeling, scuba diving, and exploring vibrant coral reefs. The region's cultural heritage is equally impressive, with historic forts such as Sindhudurg and Vijaydurg, and ancient temples like the Ganpatipule Temple. This blend of natural beauty, marine tourism, and cultural landmarks makes the Konkan region a captivating destination for travelers.

Western Ghats and Sahyadri Range

The Western Ghats and Sahyadri Range boast popular hill stations like Mahabaleshwar, Lonavala, and Matheran, known for their cool climates, scenic viewpoints, and lush greenery. The region also features beautiful lakes and dams, such as Wilson and Panshet Dam, ideal for boating and picnics. Additionally, the semi-evergreen and deciduous forests, rich in flora and fauna, make the area a haven for nature enthusiasts and trekkers.

Marathwada Region

The Marathwada region of Maharashtra is renowned for its unique geological formations and historical forts. A key ecotourism highlight is the Lonar Crater, a rare geological site created by a meteor impact, encircled by a wildlife sanctuary and ancient temples. Additionally, historical forts like Daulatabad and Narnala offer rich cultural heritage experiences and opportunities for heritage walks and exploration.

Vidarbha Region

The Vidarbha region is renowned for its wildlife sanctuaries, such as Tadoba-Andhari Tiger Reserve, Pench National Park, and Nagzira Wildlife Sanctuary, offering thrilling safaris and excellent bird-watching opportunities. The dense forests and nature parks provide a perfect escape for nature enthusiasts and those looking to explore the wilderness.

Costs Associated with Maharashtra

In the past, areas of mangrove swamps and evergreen vegetation dotted the coast of Maharashtra. Tigers, leopards, gaurs, and deer lived in the woods. Amphibians and reptiles are very diverse. Huge schools of fish called the ocean's expansive continental shelf home. Many different kinds of little fish used patches of coral as their nesting grounds. People who live near waterways or estuaries have traditionally called the coastal belt home. In the coastal farmlands, the Kolis coexist with the Kokan farmers, who

cultivate rice on terraced flatlands by collecting and storing the enormous amounts of rainwater that pours down from the Sahyadris during the monsoons. The farmers get their fertiliser by cutting down trees in the nearby woods on the Western slopes of the Ghats. Before the monsoon, they burn the dried bales on their fields. Its development has degraded forests, which has reduced the viability of natural habitats for a varied variety of flora and animals, and was formerly a sustainable activity. Nothing will ever be the same when these species, which are in danger of extinction, disappear. Even more disastrous are the more recent developments in ports, highways, urbanisation, and industry. As a result of human activity and urbanisation, river delta mangroves and woodlands are dying off. There was an abundance of marine crustacea and fish in these areas. Even worse has been the overfishing that has resulted from commercial fisheries' trawling practices, which have led to the discarding of even the smallest fish and other marine life. Massive fishing nets snatch dolphins and turtles and rip coral reefs apart.

Hydrobiology of Freshwater Environments: Damage to Maharashtra's freshwater aquatic environment is also substantial. The artificial backwaters created by the Deccan Irrigation Dams have partly replaced the once-present wetlands. Fish like the Mahseer, which can reach lengths of over a metre, have all but vanished from the tributaries of the rivers in the Western Ghats, with the exception of the hydro lakes established by the Tata family (Munish Tiwari, 2012) ^[18]. River and lake aquatic avifauna populations have dropped significantly. Industrial and urban runoff has wreaked havoc on even these semi-natural habitats, often rendering them unsalvageable.

Different Methods of Conservation: The local community and forest dwellers' increased knowledge of the need to preserve flora and animals in recent years has been crucial in preserving this forest. In the Northern Western Ghats, people are no longer cutting down trees for their lumber or other non-forest uses; instead, they are engaging in eco-restoration of sacred groves, reviving traditional forest conservation practices, conducting conservation assessments of rare medicinal ants, and protecting flagship species like the great hornbill. The socioeconomic profile, natural resource utilisation practices, and other site-specific factors pose a danger to biodiversity (Richards, 2000) ^[21]. Protecting Maharashtra's abundant biodiversity requires effective conservation strategies. The biggest danger to biodiversity is the increasing human population, as it directly affects people's ability to make a living. Natural resources are depleted when activities such as fishing, cutting down trees, and hunting take place. The forest department is involved in these eco-tourism development operations. There has to be a greater emphasis on conservation in emerging nations like India, where a lot of people visit the woods.

The Journey for Ecotourism in Maharashtra State:

2008: Formation of Maharashtra Ecotourism Policy to promote sustainable tourism, conserves natural environments, and support local communities.

2012: Introduction of Enhanced Ecotourism Policy to enhance conservation efforts, improves community well-being, and raise environmental awareness.

2015: Establishment of Maharashtra Ecotourism Development Board (MEDB) to oversee ecotourism development, ensure adherence to standards, and promote sustainable practices.

2016

- Implementation of Byelaws to establish regulations for ecotourism activities and ensure compliance with environmental standards.
- Launch of Homestead Initiative to promote rural tourism, support local homesteads, and enhance visitor experiences.

2018: Registration of Tour Operators to regulate and standardize operations of ecotourism tour operators.

2023: Formation of Panel of Architects to set architectural standards for ecotourism sites and ensure sustainable, eco-friendly designs.

2024: Promotion of Wildlife Safaris to promote ethical wildlife safaris, support conservation efforts, and engage local communities.

Summary of Ecotourism Project Approvals and Funding

- Plans approved by Nature Tourism Expert Committee - 79
- Plans approved by Nature Tourism Executive Committee - 356
- Total Revised Approved DPR's - 64
- Total Approved DPR's - 435
- Total Wildlife DPR's Approved - 44
- Total DPR's Approved (Other than Wildlife) - 391
- Total Approved Grant - 76539.84 Lacks
- Total Allotment of Grant - 65054.82 Lacks
- Total Accreditation's Awarded - 4

Conclusion

Ecotourism in Maharashtra has a significant potential to both conserve the environment and promote sustainable development. Due to the state's vast biodiversity, its commitment to the preservation of natural regions, and its focus on the empowerment of local people, the state has an outstanding potential for responsible tourism. The potential benefits, which may include increased environmental knowledge and economic opportunities for rural communities, exceed the potential drawbacks, which include excessive tourist and ecological harm, both of which need to be managed with extreme caution. It is possible for Maharashtra to establish an ecotourism economy that protects its flora and fauna and ensures a sustainable future for its residents and ecosystems. This may be accomplished by fostering collaboration between governmental bodies, environmentalists, community members, and the commercial sector. In order for the state to fully exploit the potential of ecotourism, there has to be a balance between the establishment of economic growth and the protection of natural systems.

Acknowledgement

Authors are thankful to Government of Maharashtra, Forest Department for support and giving opportunity for this research work. Special thankful to Shri. Vivek Khandekar, IFS, Managing Director, Maharashtra Ecotourism Development Board, M.S. Nagpur, Maharashtra state.

Disclosure of conflict of interest

The authors declare no conflict of interest.

References

1. Campbell LM. Eco-tourism in the rural developing communities. *Annals of Tourism Research*. 2019;26(3):234.
2. Cater E. Ecotourism in the Third World: Problems for sustainable tourism development. *Tourism Management*. 2013;85-90.
3. Center for Conservation Governance and Policy, Ashoka Trust for Research in Ecology and the Environment. Eco-tourism white paper [Internet]. Available from: www.sikkimforest.gov.in/docs/eco_tsm_whitepaper.pdf. [Accessed 23 July 2013].
4. Diaz JL. Development models and conservation. The School for Field Studies Centre for Sustainable Development, Atenas, Costa Rica. 2017;42-47.
5. Patil DY, Patil LS. Environmental carrying capacity and tourism development in Maharashtra [Internet]. Available from: dspace.iimk.ac.in/bitstream/2259/543/1. [Accessed 5 September 2013].
6. Environment Department, Government of Maharashtra. Understanding report of Western Ghats Ecology Expert Panel—Maharashtra perspective. EVIS Centre, Mumbai [Internet]. Available from: http://envis.maharashtra.gov.in/envis_data_files/W.G. April-June 2012.
7. Poyya Moli G. Eco-cultural tourism for biodiversity conservation and sustainable development. *International Journal of Hospitality and Tourism System*. 2008;1:34-45.
8. Government of Maharashtra. Eco-tourism policy of Maharashtra. 2008;1-7.
9. Hall D, Brown F. *Tourism in peripheral areas*. Channel View, Clevedon, UK. 2000;110-118.
10. Higham JES, Carr AM, Gale S. Ecotourism in New Zealand: Profiling visitors to New Zealand ecotourism operations. Research Paper Number Ten, Department of Tourism, University of Otago, Dunedin, New Zealand. 2001;1-56.
11. Hodur NM, Leistritz EL, *et al*. Assessing the economic development potential of natural tourism. *Great Plains Research Journal*. 2005;15:279-291.
12. Joshi VM. Eco-tourism—A key to protect the biodiversity in Maharashtra. *International Journal of Innovative Research in Science, Engineering and Technology*. 2014;3:15167-15174. DOI:10.15680/IJIRSET.2014.0308015.
13. Manhas PS. Sustainable and responsible tourism trends, practices, and cases. PHI Learning Pvt Ltd, New Delhi. 2012;154-168.
14. Wood ME. Ecotourism—Principles, practices, and policies for sustainability [Internet]. Available from: [http://www.pnuma.org/eficienciarecursos/documentos/Ecotourism1](http://www.pnuma.org/eficienciarecursos/documentos/Ecotourism1.pdf). [Accessed 23 July 2013].
15. Ministry of Environment and Forest, Government of India. State environment report—Maharashtra [Internet]. Available from: www.moef.nic.in/soer/state/soe. [Accessed 28 December 2024].

16. Ministry of Environment and Forests, Government of India. Annual report 2011-2012 [Internet]. Available from: <http://moef.gov.in>. [Accessed 28 December 2024].
17. Ministry of Tourism, Government of India. India tourism statistics 2013 [Internet]. Available from: <http://tourism.gov.in/pdf>. [Accessed 28 December 2024].
18. Tiwari M. Making of Indian tourism in the 21st century: Challenges and prospects. *International Journal of Physical and Social Science*. 2012;2(5):311-312.
19. Patil DY, Patil LS. Environmental carrying capacity and tourism development in Maharashtra [Internet]. Available from: <http://dspace.iimk.ac.in/bitstream/2259/543/1>. [Accessed 28 December 2024].
20. Poyya Moli G. Eco-cultural tourism for biodiversity conservation and sustainable development. *International Journal of Hospitality and Tourism System*. 2008;1:34-45.
21. Richards G, Halls D. *Tourism and sustainable community development*. Routledge, New York. 2000;149-160.
22. Sawarkar K, Mishra SK. *Promoting tourism in India*. Kanishka Publishers and Distributors, New Delhi. 2010;159-162.
23. Sheti P. *Tourism—Today and tomorrow*. Anmol Publication Pvt. Ltd, New Delhi. 2012;16-17.
24. UNWTO. Ecotourism and protected areas—Sustainable development of tourism [Internet]. Available from: <http://sdt.unwto.org/en/content/ecotourism-and-protected-areas>. [Accessed 29 December 2024].
25. Maharashtra Forest Department. [Internet]. Available from: <https://mahaforest.gov.in/index.php/Contentpage/index/Ri9vcnZ1cEZTZnhTWIZZPQ%3D%3D/en>. [Accessed 29 December 2024].
26. Maharashtra Eco-tourism. About us [Internet]. Available from: <https://mahaecotourism.gov.in/ecotourism/en/about-us>. [Accessed 29 December 2024].