

A Study on Ecotourism and Wildlife Protection, with a Focus on Uttarakhand

Surbhi Chugh¹ and Aayushi Upadhyay²

Research Scholar, Indira Priyadarshini Government Girls P.G. College of Commerce, Haldwani, Uttarakhand¹

Assistant Professor, MIET Kumaon, Haldwani, Uttarakhand²

A Constituent of Kumaun University

surbhichugh999@gmail.com and aayushiupadhyay79@gmail.com

Abstract: *In Uttarakhand, ecotourism and biodiversity conservation work hand in hand to protect the area's unique natural history while fostering environmentally conscious travel. The preservation of Uttarakhand's distinctive flora and fauna, which includes uncommon and endangered species like the Bengal tiger and snow leopard as well as numerous birds and plant species, is a key component of biodiversity conservation. Protecting habitat, creating wildlife corridors, enforcing anti-poaching laws, and supporting community-based conservation projects are the main goals of the efforts. Uttarakhand's conservation efforts greatly benefit from ecotourism, which provides visitors with intimate nature encounters while reducing its negative environmental effects. Guided hikes, wildlife safaris, bird watching excursions, and nature walks are examples of ecotourism activities that let visitors enjoy the area's natural beauty while helping the local people. In order to guarantee that ecotourism activities are in line with conservation objectives, the government of Uttarakhand works with a number of organizations, encouraging ecotourism practices like waste management, energy conservation, and community involvement. Uttarakhand strives to preserve its biodiversity while offering guests unforgettable experiences and a sustainable means of subsistence for the local people, all while finding a balance between conservation and tourism.*

Keywords: Sustainable tourism, Wildlife Protection, Uttarakhand

I. INTRODUCTION

Biodiversity refers to all the different kinds of life that can coexist in one area; these include the different fungi, plants, animals, and even microbes like bacteria that comprise our natural world. Together, these various species and organisms form ecosystems that support life and preserve equilibrium, much like a complex web. Everything that we require to thrive in nature, including food, clean water, medicine, and shelter, is supported by biodiversity.

However, we run the risk of disturbing ecosystem balances and losing biodiversity as humans place more and more strain on the world by utilizing and consuming more resources than ever before. According to WWF's 2022 Living Planet Report, since 1970, the number of mammals, fish, birds, reptiles, and amphibians has decreased globally by an average of 69%.

The Intergovernmental Platform on Biodiversity and Ecosystem Services released its historic Global Assessment Report in 2019, which found that 1 million plant and animal species—the greatest number in human history—are currently in danger of going extinct. Roughly 66% of the ocean ecosystem and 75% of the land environment have undergone major alteration. Nowadays, agriculture and livestock production occupy about one-third of the world's land area and approximately 75% of its freshwater resources. The effects of various stresses on the environment and human welfare are exacerbated by climate change. Ocean overfishing, deforestation, contaminated water supplies, and the climate catastrophe are all results of human activity. Biodiversity is being impacted by these acts everywhere in the world, even in our own backyards. Therefore, the need for conservation of wildlife becomes very crucial in order to maintain the ecological balance.

The preservation, management, and restoration of Earth's biodiversity, which includes the variety of species, ecosystems, and genetic resources, are known as biodiversity conservation. It seeks to preserve the biological legacy of

the world, the health and resilience of natural ecosystems, and ecosystem services that are essential to human well-being. The creation of protected areas, habitat restoration, sustainable resource management, species conservation initiatives, and public awareness campaigns are just a few of the tactics used in conservation efforts. Preserving ecological functioning, bolstering food security, reducing climate change, and advancing sustainable development all depend on biodiversity protection. To ensure the continued existence of many forms of life on Earth, cooperation between governments, conservation organizations, local communities, and individuals is necessary to address concerns including habitat destruction, pollution, overexploitation, and climate change.

With the goal of preserving the resilience and health of natural systems as well as the services they offer to humans, it includes the preservation of a wide range of ecosystems, species, and genetic resources. These are explained as below:

- **Protection of Ecosystems:** Protecting intact ecosystems, including rivers, grasslands, wetlands, forests, and coral reefs, is a key component in biodiversity conservation. A vast variety of plant and animal species are supported by these ecosystems, which also offer vital functions like soil fertility, carbon sequestration, water and air purification, and climate management.
- **Conservation of Species:** Conservation initiatives work to save vulnerable and endangered species, such as fish, insects, amphibians, birds, mammals, and plants. Restoring natural habitats, starting captive breeding operations, creating protected areas, controlling the trade in endangered animals, and upholding laws protecting wildlife are a few examples of possible actions.
- **Genetic variety:** Maintaining genetic variety within species is a key component of biodiversity conservation as it is necessary for adaptability, resilience, and evolutionary potential. Breeding programs for agriculture, forestry, and medicine rely on genetic resources saved in seed banks, gene banks, botanical gardens, and animal conservation centers to sustain biodiversity.
- **Sustainable Resource Management:** Conservation initiatives support natural resource management strategies that take into account the needs of fisheries, forests, waterways, and agricultural areas. The goal of sustainable resource management is to maintain ecosystems' health and productivity for future generations by striking a balance between human requirements and the long-term conservation of biodiversity.
- **Protected Areas:** A crucial tactic for preserving biodiversity is the creation of protected areas, such as national parks, wildlife sanctuaries, marine reserves, and biosphere reserves. These places minimize human disturbances while offering safe havens for wildlife, protecting important habitats, and facilitating scientific research, teaching, and ecotourism.
- **Community Involvement:** Working together with nearby communities who rely on natural resources for their livelihoods is a common aspect of biodiversity protection. Local stewardship and support for conservation objectives can be fostered by including communities in conservation activities through participatory management techniques, sustainable livelihood initiatives, and incentives for conservation behaviors.
- **Policy and Advocacy:** When it comes to creating international agreements, regulations, and policies that support the protection of biodiversity, governments, non-governmental organizations (NGOs), and civil society are essential players. The goals of advocacy are to increase political will, mobilize resources, and raise public awareness of concerns like pollution, habitat destruction, climate change, and unsustainable resource extraction.

Ecotourism is a growing sector of the tourism industry that represents an ethical travel attitude that places an emphasis on protecting natural areas and enhancing the welfare of local communities. The fundamental goal of ecotourism is to promote a positive interaction between tourists and the environments they visit, with a focus on cultural sensitivity, sustainability, and environmental stewardship. In contrast to conventional tourism, which frequently places a premium on mass consumerism and ignores ecological effects, ecotourism promotes low-impact tourist behaviors that reduce environmental damage while enhancing awareness of the natural world.

Immersion with nature is at the heart of the ecotourism philosophy. Ecotourism sites cover a wide range of ecosystems, from untainted beaches and verdant rainforests to untamed mountains and isolated wilderness regions. By engaging in pursuits like hiking, kayaking, snorkeling, wildlife observation, and birding, visitors can discover these natural treasures and develop a strong bond with the environment as well as a greater awareness of its fragility. Travelers learn about the

flora, wildlife, and cultural legacy that shape these ecosystems as they are accompanied by informed local guides, who provide them with insights into the ecological value of the landscapes they pass.

Crucially, ecotourism is guided by principles of sustainability and conservation. Tour operators and accommodations adhere to eco-friendly practices, such as minimizing waste, conserving energy and water, and supporting local conservation initiatives. Revenue generated from ecotourism activities is often reinvested into biodiversity conservation efforts, habitat restoration projects, and community development initiatives, ensuring that tourism benefits both the environment and the people who depend on it for their livelihoods. By embracing ecotourism, travelers become active participants in conservation, contributing to the protection of natural resources and the preservation of cultural heritage for future generations to enjoy.

In essence, ecotourism represents a transformative approach to travel that transcends mere sightseeing, offering a profound and meaningful connection with the natural world. It serves as a powerful tool for environmental education, cultural exchange, and sustainable development, empowering travelers to make positive contributions to the places they visit while experiencing the beauty and wonder of our planet in a responsible and respectful manner.

According **Brandt S. Jodi et al. 2019** Ecotourism is proliferating in biodiversity hotspots and its proponents claim it can achieve conservation and economic development goals. In many places, ecotourism is now a key factor in socioeconomic change and economic expansion.

The state of Uttarakhand, an integrated part of the Himalaya and the world-famous eco-tourism destination, has distinct physical features – snow-clad Himalaya, perennial lakes within forest areas, rolling alpine meadows, exotic wildlife, dense forests, and wetland habitats. It supports rich biodiversity in the forms of NPs and WLSs and varied panoramic forest landscapes from the plain regions to Shivalik hills, middle Himalaya, and the snow-capped Himalayan ranges. The climate of the Uttarakhand Himalaya varies with height, leading to variations in the faunal, floral, and avifaunal resources. Tourism is one of the important service sectors in Uttarakhand. It ranks 12th in the global tourism ranking (Sati, 2013, 2015, 2018) and shares a total of 52% Gross State Development Product (SGDP). Tourism practices vary from pilgrimage tourism to natural tourism, adventurer tourism, and eco-tourism. However, pilgrimage tourism is practiced largely, followed by natural tourism, and adventurer tourism. Eco-tourism is still in its infancy and needs more development. In the meantime, the forest landscape and climate support eco-tourism development in the Uttarakhand Himalaya. (**Sati Prasad Vishwambhar, 2021**)

II. LITERATURE REVIEW

Sati Prasad Vishwambhar (2021). This study analyzes the potential for ecotourism development as well as the base of ecotourism resources to look at trends and possibilities for ecotourism development in the Uttarakhand Himalaya. The Uttarakhand Himalaya is one of the biodiversity hotspots and has a high biodiversity, according to this study. Its breathtaking three-dimensional forest vistas offer ideal starting points for the growth of ecotourism. However, because the ecotourism resource bases are not being used sustainably, ecotourism development has been unable to materialize. This study notes that it is crucial to conserve wildlife in its natural environment and suggests policy strategies for the growth of ecotourism in the Uttarakhand Himalaya.

Vishnoi Ritika, Kumar Dinesh (2021). This study focuses on Uttarakhand Himalaya's unique biodiversity. Important dangers and preservation tactics are also covered. For this priceless natural resource to continue to exist, biodiversity conservation is desperately needed. It also mentions that strict laws and regulations, the use of contemporary instruments and methods, public awareness, etc., are required. For the sake of future generations, these natural resources of the Uttarakhand Himalayas must be preserved and restored.

Lad Ramdas (2020). It was discovered that ecotourism would give the state's skilled workers jobs and business prospects. Consequently, via training, education, and the provision of full-time job possibilities, conservation management and tourism-related activities may offer men and women in the Nainital community equitable, social, and cultural benefits. It was noted that Nainital is endowed with a stunning, priceless, and significant terrain, but that neither the general people nor visitors are properly aware of this. As a result, creating an ecotourism center is necessary.

Kukreti Mohan (2020). In particular, the framework of the Indian government and the state of Uttarakhand, as well as the research and reviews of their ecotourism policies, are the focus of this article. Generally speaking, it assesses and examines the future and importance of Uttarakhand's natural resources for the growth of community-based ecotourism

and the villages' sustainable development, which includes biological variety preservation and also suggests that A comprehensive plan is required, with a focus on visitor satisfaction with regard to hospitality, particularly in Homestay in rural areas; maintaining carrying capacity; appropriate waste management plans; and making the most use of local handicrafts, artifacts, and cultural activities to foster a sense of community among visitors and guarantee a peaceful and healthy environment for local tourism.

Brandt S. Jodi, Radeloff Volker, Allendorf Teri, Butsic Van and Roopsind Anand (2019). Using data from 15 ecotourism hubs and non-ecotourism areas across 4 Himalayan countries, this study attempted to determine whether or not ecotourism affected the rates and trajectories of forest loss in Himalayan temperate forests between 2000 and 2017. As ecotourism is now implemented in the Himalaya, the results indicate that its effectiveness as a strategy for forest protection depends on the specific setting. Ecotourism may be a more environmentally beneficial method of economic development in an area where there is significant pressure to deforest than other methods. In areas where deforestation is limited, ecotourism may, nevertheless, accelerate the loss of forests.

Sharma Ruchika, Singh Kumar Manoj, and Tamta Sushma (2017). This article seeks to provide light on the state of Uttarakhand's biodiversity, the main problems that it faces, and the conservation measures the government has taken to protect it. Additionally, it says that since humans are completely dependent on biodiversity and reap its benefits, they should protect it in order to stop the depletion and destruction of natural resources and keep biodiversity at a threshold level where future generations can continue to benefit from it as well.

2.1 OBJECTIVES OF THE STUDY

- To research the state's need for ecotourism.
- To examine how biodiversity conservation contributes to the growth of ecotourism.
- Investigating the obstacles to biodiversity preservation and tourist promotion.
- To assess the steps taken by the government to encourage ecotourism and wildlife preservation.

III. RESEARCH METHODOLOGY

The Assignment is completely based on Secondary Data accessed through various research papers, articles accessed on Shodhganga, Research gate, Google Scholars.

IV. RESULTS AND DISCUSSION

OBJECTIVE 1: To research the state's need for ecotourism.

Tucked up among the towering Himalayan hills, Uttarakhand is a culturally and naturally rich haven. However, as this Himalayan kingdom struggles with the demands of contemporary development and tourism, a sustainable strategy for utilizing its wealth of natural resources becomes imperative. As a means of preserving Uttarakhand's biodiversity, strengthening the local economy, and assuring the resilience of its delicate ecosystems, ecotourism appears as a ray of hope.

To begin with, the exceptional biodiversity of Uttarakhand emphasizes how urgent it is to use ecotourism as the main strategy for developing the travel industry. Uttarakhand is home to a wide variety of flora and wildlife, including some endangered species, because to its vast range of environments, which span from deep forests to alpine meadows.

Unchecked tourism activities, however, pose a threat to these fragile ecosystems, resulting in pollution, habitat damage, and biodiversity loss. With its focus on low-impact tourism and responsible travel methods, ecotourism offers a strong argument for reducing these risks and protecting Uttarakhand's natural legacy for future generations.

As cited by (**Sati Prasad Vishwambhar, 2021**) The term "eco-tourism" was coined in the 1980s to encourage environmentally conscious travel to places with natural features, forests, and cultural significance. It centers on enjoyment, which is sustainable and grounded in nature. Because of its many facets, including analyzing how tourism affects the environment, involving the community in the development of eco-tourism, and conserving the natural world, eco-tourism is known as "Responsible Tourism" (Black 1996). Ecotourism is a significant type of nature-based tourism that contributes to the preservation of the natural environment and rural livelihoods by creating jobs, bringing in money, and protecting cultural heritage (World Bank 2018; WTTC 2017; UNWTO 2013, TugbaKiper 2013).

According to Vaccaro et al. (2013) as stated by **Sati Prasad Vishwambhar, 2021**, it is a market-based strategy for the preservation of NPs, WLSs, and CRs, and it benefits the local population, the environment, and visitors alike. Additionally, ecotourism encourages visitors to support the preservation of biodiversity, natural ecosystems, adventure travel, extreme sports, and agro forestry in WLSs and NPs.

Also, there is a great deal of promise for ecotourism to improve the socioeconomic standing of the local inhabitants in Uttarakhand. Pastoralism, forestry, and agriculture are just a few of the many rural livelihoods that rely on natural resources. These communities may diversify their sources of income and lessen their dependency on environmentally harmful behaviors by utilizing the potential of ecotourism. Locals are empowered to actively participate in tourism activities while maintaining their cultural identity and legacy through community-based ecotourism programs like home stays, guided tours, and handicraft workshops. Ecotourism allows communities to benefit from tourism while protecting the ecosystems that support their way of life by encouraging a sense of ownership and stewardship over their natural surroundings.

With no harm done to the natural or cultural resources that visitors have come to view, ecotourism has a great deal of potential to draw tourists to the state. Furthermore, it would give skilled residents of the state access to business and employment prospects. Because of this, the local Nainital community's men and women may profit equally from conservation management and tourism-related activities in the form of education, training, and full-time job possibilities. Additionally, ecotourism experiences are often at the forefront of innovation in the travel industry and are easily marketed to the growing number of travelers who want to make sure that their vacation has a positive impact on the environment and the communities they visit. **(Lad Ramdas, 2020)**

Furthermore, ecotourism provides a platform for demonstrating Uttarakhand's distinct cultural legacy and customs to a broad global audience. Uttarakhand's cultural diversity is a fundamental component of its character, encompassing everything from vibrant festivals and handicrafts to centuries-old temples and pilgrimage destinations. Travelers are given a comprehensive understanding of the region's legacy through ecotourism experiences that combine nature-based activities with cultural immersion, which promotes cross-cultural appreciation and exchange. Uttarakhand can create new economic opportunities and save its intangible cultural resources for future generations by fostering ecotourism and cultural tourism together.

In the current situation, efforts have been made to promote both ecological and economic development. The emerging civilizations' methods of generating revenue were hampered by an ideology of wealth generation. Protecting and conserving the planet's flora and fauna is now imperative in order to avert natural disasters. As a result, this mindset has to permeate the policies that aim to promote both economic growth and environmental protection. Eco-development is the name given to this aspect of development. It is feasible to lessen landslide deforestation, water pollution, and de-urbanization with this kind of development. We may preserve our ecosystem in this way. Rural tourism, adventure tourism, sports tourism, green tourism, cultural tourism, nature-focused tourism, agro-tourism, and health tourism are some of the subcategories of ecotourism. Therefore, ecotourism refers to travel that combines ecological safety and conservation. **(Lad Ramdas, 2020)**

In a nutshell ecotourism in Uttarakhand is not just a matter of preference; it is also morally required. Ecotourism arises as an inclusive and sustainable approach that puts the welfare of communities and the natural world first, particularly as the state struggles with issues of sustainable development and conservation. Uttarakhand can steer towards a more fair and resilient future, where the beauty of its landscapes and the richness of its cultural heritage are valued and protected for future generations, by adopting ecotourism concepts and practices.

OBJECTIVE 2: To examine how biodiversity conservation contributes to the growth of ecotourism.

Attractions for ecotourism aficionados seeking deep-dive experiences in nature: Uttarakhand's abundant biodiversity and stunning landscapes have made it a top destination. Rich in flora and animals, the region's many ecosystems—from verdant woods to lofty peaks—make it the perfect place for ecotourism pursuits. The objective of this essay is to examine the complex relationship that exists between the preservation of biodiversity and the expansion of ecotourism in Uttarakhand, emphasizing the ways in which conservation initiatives support the industry's growth.

Ecotourism's Foundation: Biodiversity Conservation

In Uttarakhand, the preservation of biodiversity is the cornerstone of ecotourism, serving as the source material for experiences centered on the natural world. As the cornerstone of ecotourism, protected places like national parks, wildlife sanctuaries, and biosphere reserves give tourists the opportunity to see and appreciate the region's rich natural heritage. The preservation of wildlife habitats and a variety of ecosystems paves the way for the growth of ecotourism in a sustainable manner, guaranteeing that Uttarakhand's scenic landscapes will remain beautiful for future generations.

Economic Gains from Ecotourism Associated with Conservation:

In Uttarakhand, the upkeep of biodiversity and the economic gains from ecotourism are strongly related. The area's pristine natural settings and distinctive animals captivate tourists, which increases demand for ecotourism lodgings and services. The revenue earned through ecotourism activities including guided tours, accommodations, and mementos directly supports funding for conservation and the preservation of natural areas. Additionally, ecotourism generates job possibilities for nearby people, motivating them to engage in conservation efforts and cultivating a sense of responsibility towards natural resources.

Principles of sustainability and ethical tourist practices serve as the foundation for the preservation of biodiversity and the expansion of ecotourism in Uttarakhand. Operators of ecotourism follow regulations designed to reduce their negative effects on the environment. These include encouraging wildlife-friendly behavior, controlling waste, and restricting the number of visitors. Ecotourism makes sure that tourism development in Uttarakhand is both financially feasible and environmentally sustainable by putting a priority on the preservation of ecosystems and cultural heritage. This helps to protect the area's natural resources for coming generations.

This can be more highlighted with the best example of **The Nanda Devi Biosphere Reserve** in Uttarakhand's Himalayan area is a shining example of how biodiversity conservation promotes the growth of ecotourism. The varied range of ecosystems found in this UNESCO World Heritage Site, which includes high-altitude forests, glaciers, and alpine meadows, serve as home to many rare species. Countless tourists participate in ecotourism activities like hiking, climbing, and animal observation every year, which brings in money for the reserve's conservation efforts. As an example of how ecotourism may promote sustainable development and save delicate ecosystems, consider the Nanda Devi Biosphere Reserve, which strikes a balance between tourist and conservation.

The Corbett Tiger Reserve in Uttarakhand is another a good illustration of the connection between ecotourism and biodiversity conservation. Originally designated Hailey National Park in 1936, the reserve was subsequently renamed in honor of famed conservationist Jim Corbett. Today, it is a popular ecotourism destination in addition to providing a safe refuge for Bengal tigers. In addition to aiding in the preservation of the area's biodiversity, conservation initiatives focused at safeguarding the tiger population and their habitat have drawn thousands of tourists annually, greatly boosting the local economy.

Corbett Tiger Reserve is a popular destination for ecotourists and wildlife enthusiasts owing to its diverse flora and fauna, along with fascinating mega fauna like tigers. The reserve offers possibilities for guided safaris, nature walks, and bird watching trips that allow visitors to enjoy the natural beauty and richness of the area. Moreover, responsible tourism practices and environmentally suitable lodgings guarantee that tourism has as minimal of an impact on the environment as possible, protecting the ecosystems of the reserve.

Additionally, Corbett Tiger Reserve's ecotourism earnings directly support community-based conservation programs, habitat restoration projects, and anti-poaching patrols, among other biodiversity conservation measures. Along with job opportunities as guides, lodge employees, and artists, ecotourism also benefits local communities through revenue-sharing programs that encourage participation in conservation initiatives.

Traveling to pristine natural locations with little environmental damage is one of ecotourism's hallmarks. Furthermore, it supports the sustainable use of biodiversity, creates jobs for the local population, improves the legacy and living cultures of the host communities, and aids in the region's sustainable development. It is also essential to preserve biological and cultural variety by safeguarding ecosystems. Sustainable tourism preserves the environment, upholds the welfare of the community, and gives locals economic advantages and self-determination. By disseminating this information, native populations and local communities can reap socio-economic advantages by publicly expressing their approval and taking part in the administration of ecotourism initiatives. Promoting recycling, energy efficiency,

water conservation, and the development of business opportunities for nearby people are essential components of ecotourism. (Lad Ramdas, 2020)

We can observe how biodiversity conservation initiatives have not only aided in the expansion of ecotourism in Uttarakhand but have also promoted a mutually beneficial link between economic development and conservation by looking at these two examples: Nanda Devi and Corbett Tiger Reserve. In order to ensure the long-term sustainability of the tourism sector as well as the region's natural ecosystems, it is imperative that biodiversity conservation be given top priority. This can be achieved by promoting sustainable tourism practices, improving visitor experiences, and providing support to local communities.

OBJECTIVE 3: Investigating the obstacles to biodiversity preservation and tourist promotion.

Preserving Uttarakhand's biodiversity is a vital undertaking that illuminates the issues affecting the sustainability and ecological well-being of the area. Loss of habitat, mainly due to deforestation, increased agricultural production, urbanization, and infrastructural development, is a major barrier. These actions cause ecosystems to be disrupted, wildlife populations to be displaced and natural habitats to be destroyed and fragmented. Species are more vulnerable to extinction, have less breeding ground, and face greater competition for resources as their habitats become smaller. In order to address habitat loss, it is necessary to comprehend its underlying causes and put conservation measures in place that save and restore vital habitats throughout Uttarakhand.

Invasive species outcompete native species for resources and upset ecological equilibrium, which is another barrier to Uttarakhand's biodiversity preservation. Intentional or inadvertent human introduction of invasive species can result in their fast expansion and constitute a serious threat to native wildlife and flora. For instance, invasive plants that outcompete native vegetation and lower the quality of wildlife habitats, such as *Lantana camara* and *Parthenium hysterophorus*, can take over landscapes. In a similar vein, invasive species that cause harm to ecosystems include Himalayan thar and feral pigs because they overgraze, crush vegetation, and spread disease. Invasive species' effects on Uttarakhand's biodiversity must be controlled and mitigated with the use of effective management techniques.

As well, the preservation of Uttarakhand's biodiversity is severely threatened by climate change, which intensifies already-existing risks and creates new difficulties. Natural disaster frequency and intensity can rise due to factors such as changing precipitation patterns, rising temperatures, and extreme weather events that disturb ecosystems and change species distributions. For example, freshwater habitats and aquatic species can be impacted by melting glaciers and altering river flows, and the phenology and distribution of plants and animals can be impacted by shifting temperature regimes. To lessen the effects of climate change on Uttarakhand's biodiversity in the future, adaptive management techniques, improved ecosystem resilience, and decreased greenhouse gas emissions must be put into place.

In addition to these difficulties, conflict between humans and wildlife is a major barrier to Uttarakhand's biodiversity being preserved. Conflicts between people and wildlife worsen when human populations grow and invade wildlife areas; this results in habitat loss, retaliatory kills, and unfavorable attitudes toward conservation. Conflicts between people and wildlife can lead to biodiversity loss, dwindling wildlife populations, and problems with ecosystem function. Reducing human-animal conflicts and fostering cohabitation between humans and wildlife in Uttarakhand require effective mitigation measures such as habitat restoration, conflict mediation techniques, and community-based conservation programs.

As cited by Sharma Ruchika, Singh Kumar Manoj, and Tamta Sushma, 2017 the various goals of conservation strategies are as follows:

- a) Conserving the natural heritage of the state, including the unique, rich biodiversity, and fragile ecosystems, such as forests, grasslands, wetlands, and mountains; wild and domesticated biodiversity; genetic resources and ecological and environmental processes.
- b) Giving priority to in situ conservation of the state's biological and cultural diversity located both within and outside the state's protected areas.
- c) Ex situ conservation of flora, fauna, and floral and faunal genetic resources.
- d) Developing strategies and actions for the conservation of agriculture, livestock, fodder and ethnobotanical diversity.
- e) Using biodiversity and natural resources sustainably.

Understanding the barriers preventing the sustainable growth of the tourism sector in the area is essential for promoting tourism in Uttarakhand. The absence of suitable infrastructure, such as lodging, facilities, and transit networks, is a major barrier. Inaccessible roads make it difficult for visitors to easily explore the region's attractions, especially in rural areas. Furthermore, during the busiest travel seasons, there might not be enough lodging options to accommodate the demand, which would result in crowding, annoyance, and unhappy tourists. In order to improve Uttarakhand's tourism appeal and accessibility, it is imperative that any infrastructure deficiencies be addressed.

Also, a major barrier to Uttarakhand's efforts to promote tourism is the use of inefficient marketing techniques. Even though the area has unmatched natural beauty and a rich cultural legacy, insufficient marketing efforts do not adequately convey these benefits to prospective visitors. The state of Uttarakhand's tourism is not well-known, both nationally and globally, which makes it difficult to draw visitors and change the types of people who visit. Furthermore, erratic branding and marketing initiatives make it more difficult for the area to stand out from other travel destinations and draw in target audiences. To promote Uttarakhand as a top travel destination, large sums of money must be invested in extensive marketing campaigns and business alliances.

Despite the enormous potential for eco-tourism in the state, its growth is lagging. The majority of people in Uttarakhand—roughly 70%—live in rural areas. They reside in and surrounding forest areas, which are essential to the people's livelihood in addition to conventional agricultural and animal husbandry practices. Therefore, the growth of ecotourism in rural regions will improve rural livelihoods. **(Sati Prasad Vishwambhar, 2021)**

An additional challenge to Uttarakhand's tourism promotion is the seasonal variations in visitor numbers. The summer and winter months are the region's busiest travel seasons, with lots more tourists and more activities related to travel. On the other hand, off-peak seasons see a sharp fall in tourism, which puts a strain on the finances of companies that depend on the industry as well as the underuse of services and infrastructure. Furthermore, seasonal congestion at busy times can put a burden on nearby resources, worsen environmental damage, and lower the quality of the visitor experience. To mitigate seasonality and ensure the long-term viability of Uttarakhand's tourism economy, year-round tourism measures like off-peak attraction development, tourism diversification, and visitation incentives during quiet seasons must be implemented.

Uttarakhand's efforts to promote tourism are further hampered by worries about over tourism. Uncontrolled tourism can have detrimental effects on the environment, nearby communities, and guest experiences, even while tourism growth is crucial for economic development. Popular tourist destinations that are overcrowded, congested roads, littering, and the destruction of natural habitats can all lower the standard of travel experiences and make the area less appealing as a travel destination. Mitigating the negative consequences of over tourism and safeguarding Uttarakhand's natural and cultural legacy for future generations need the implementation of carrying capacity evaluations, visitor management plans, and sustainable tourism practices.

The necessity of looking into these barriers from an integrated perspective is highlighted by the interdependence of biodiversity protection and tourism marketing. Unsustainable tourism practices have the potential to worsen habitat destruction, pollution, and biodiversity loss as a result of environmental deterioration. On the other hand, deteriorating animal populations and ecosystems can make a place less desirable as a travel destination, which will hurt the travel and tourism sector as well as local economy. In order to overcome these challenges, a thorough grasp of the intricate relationships that exist between tourism and conservation is necessary, as is the discovery of cooperative solutions that strike a balance between socioeconomic growth and environmental preservation.

Engaging stakeholders is essential while examining the barriers to Uttarakhand's tourism promotion and nature protection. A communal awareness of the difficulties can be formed, leading to cooperative action plans and coordinated activities, by incorporating government agencies, conservation organizations, tourism stakeholders, local communities, and researchers in the study process. In order to ensure that conservation and tourism development initiatives are based on a variety of viewpoints and local knowledge, stakeholder involvement fosters transparency, inclusion, and shared responsibility in overcoming barriers. Innovative solutions to address challenges and open the door for sustainable development and conservation in Uttarakhand can be developed through cooperative problem-solving and participatory decision-making.

OBJECTIVE 4: To assess the steps taken by the government to encourage ecotourism and wildlife preservation.

Protected areas, such as national parks, wildlife sanctuaries, and conservation reserves, are important initiatives undertaken by the government that operate as refuges for biodiversity and ecotourism. The Uttarakhand Forest Department, for example, is one of the government organizations in charge of managing these protected regions. They enforce laws protecting animals, carry out conservation efforts, and encourage eco-friendly tourism here.

The government has launched several projects (Project Tiger 1973, Project Elephant 1992, Project Snow-Leopard 2009 etc.) to preserve the ecologically important faunal species. Such schemes can also be introduced for other species which have biological, cultural and scientific value. **(Vishnoi Ritika, Kumar Dinesh, 2021)**

Also, in an effort to maximize visitor experiences while reducing environmental effects, the government has developed programs for the growth of ecotourism. These initiatives allow travelers chances for immersive nature experiences; they include the creation of nature trails, interpretation centers, and eco-friendly lodgings inside protected regions. Furthermore, the government participates in community-based ecotourism projects that empower locals, create revenue, and encourage environmental stewardship in partnership with NGOs and local communities.

In an effort to enhance rural areas with strong tourism potential, the Uttarakhand government launched the "**Community-Based Rural Tourism**" initiative in **2003**. The program's goals were to increase tourism and provide sustainable livelihoods for the local population. By giving tourism the industry status and enabling investors to take advantage of the same attractive incentives and subsidies as other industries under the MSME (Ministry of Micro, Small, and Medium Enterprises), **the Uttarakhand Tourism Policy 2018** decided on a development strategy that primarily focused on the 13 districts 13 destinations policy, which divides these districts into their potential for 13 different themes, one of which is eco/rural tourism. **(Kukreti Mohan, 2020)**

Furthermore, the government has put into effect rules and incentives aimed at boosting business sector involvement in ecotourism and wildlife preservation initiatives. These policies include land lease concessions, tax exemptions, and subsidies for ecotourism projects that follow sustainable practices and support biodiversity preservation. In order to provide ecotourism infrastructure, capacity-building initiatives, and conservation projects that benefit local economies and wildlife, the government also helps to form partnerships between private sector players, conservation organizations, and local communities.

The State Government of Uttarakhand undertook the development of sustainable tourism with consideration for the amazing forest landscape. In accordance with the 2013 Companies Act, it established an Eco-tourism Development Corporation (ETDC). With so many resources available for the growth of ecotourism, the primary goal of the ETDC was to advance ecotourism inside the state. In order to encourage ecotourism in the NPs, WLSs, and CRs, the State Forest Department (SFD) developed a "Eco-tourism Wing." The SFD is also creating eco-parks for eco-tourism. **(Sati Prasad Vishwambhar, 2021)**

In order to encourage responsible tourism and environmental preservation among travelers, tour operators, and local communities, the government has also started awareness and education initiatives. These programs increase public awareness of the value of preserving animal habitats, reducing conflicts between people and wildlife, and promoting eco-friendly travel. Additionally, in order to evaluate the ecological effects of ecotourism and animal conservation initiatives and to provide information for evidence-based decision-making and adaptive management techniques, the government conducts research and monitoring projects.

The government of Uttarakhand also introduced the "**Deendayal Upadhyaya Homestay Development Scheme**" in **2018**, which entices rural residents to earn a living by constructing or remodeling their homes to a minimal degree of standard of hospitality. Since the program's inception, roughly 267 people have registered in urban areas and 755 in rural areas across all 13 districts as of March 2019, indicating that the public has accepted the policy. Going forward, Homestay may be essential to the state's rural or green tourism industry. **(Kukreti Mohan, 2020)**

Grants are offered by the Indian Ministry of Tourism to support ecotourism and rural travel. 100% Central Assistance is provided for the development of destinations and circuits, including megaprojects, to world-standard standards, as well as for the development of rural tourism infrastructure, under the Centrally Sponsored Scheme of Product / Infrastructure Development for Destinations and Circuits. Nevertheless, the Nainital eco-zone has not developed effectively due to improper utilization of the same. **(Lad Ramdas, 2020)**

Consequently, evaluating the measures implemented by the government to promote ecotourism and animal conservation in Uttarakhand offers significant perspectives on the advancements, obstacles, and prospects linked to conservation policies and programs. Through the assessment of government programs' efficacy, interested parties can pinpoint regions in need of enhancement, fortify collaborations, and devise inventive strategies to advance sustainable development, biodiversity preservation, and ecotourism in the locality. Uttarakhand can accomplish its conservation goals while guaranteeing the long-term sustainability of its natural resources and tourism sector by means of cooperative efforts among government agencies, private sector stakeholders, conservation organizations, and local communities.

V. CONCLUSION & FINDINGS

The relationship between biodiversity conservation and ecotourism in Uttarakhand is one of mutual dependence and opportunity. By fostering sustainable ecotourism practices, Uttarakhand can not only showcase its natural treasures to visitors but also promote the long-term preservation of its diverse ecosystems. Ecotourism is a common tactic in Uttarakhand to increase public awareness of the need of protecting natural habitats and species. Furthermore, ecotourism can help save fragile ecosystems by giving communities that might otherwise participate in biodiversity-damaging activities like poaching or deforestation an alternative source of income.

There are obstacles to overcome, too, like making sure ecotourism endeavors are genuinely sustainable and do not harm the very ecosystems they are meant to highlight. For ecotourism in Uttarakhand to improve biodiversity protection and economically benefit local populations, proper planning, regulation, and community involvement are essential. Through careful planning, community involvement, and responsible management, the state can continue to reap the economic benefits of ecotourism while safeguarding its invaluable biodiversity for generations to come.

REFERENCES

- [1]. <https://www.worldwildlife.org/pages/what-is-biodiversity#:~:text=Biodiversity%20is%20all%20the%20different,maintain%20balance%20and%20support%20life>.
- [2]. Sati Prasad Vishwambhar, 2021. "TRENDS AND POTENTIAL OF ECO-TOURISM DEVELOPMENT IN UTTARAKHAND HIMALAYA". *Journal on Tourism & Sustainability* Volume 5 Issue 1 December 2021 ISSN: 2515-6780.
- [3]. Brandt S. Jodi, Radeloff Volker, Allendorf Teri, Butsic Van and Roopsind Anand, 2019. "EFFECTS OF ECOTOURISM ON FOREST LOSS IN THE HIMALAYAN BIODIVERSITY HOTSPOT BASED ON COUNTERFACTUAL ANALYSES". *Conservation Biology*, Volume 0, No. 0, 1–11.
- [4]. World Bank (2018). *Supporting sustainable livelihoods through wildlife tourism*, The World Bank Group, Washington
- [5]. WTO (2018). *World Tourism Report*, World Tourism Organization
- [6]. WTTC (2017). *World Travel and Tourism Council Travel and Tourism Impact, 2017 World*
- [7]. Ramdas Lad (2020). "IDENTIFYING THE NEED AND POTENTIAL OF ECOTOURISM IN NAINITAL, INDIA". *Tourism and Travelling*, 3(1), 3-15. doi:10.21511/tt.3(1).2021.02
- [8]. Vishnoi Ritika, Kumar Dinesh (2021). "BIODIVERSITY OF UTTARAKHAND HIMALAYAS". *Vimarshodgam Journal of Interdisciplinary Studies (VIMJINS)*. Volume 1, No. 1
- [9]. Kukreti Mohan (2020). "NATURAL RESOURCES AND POLICIES FOR COMMUNITYBASED ECOTOURISM: AN UTTARAKHAND PERSPECTIVE". *Holistic Approach Environ.* 11(2021) 4, pp. 128 – 136.
- [10]. Sharma Ruchika, Singh Kumar Manoj, and Tamta Sushma (2017). "BIODIVERSITY OF UTTARAKHAND: MAJOR ISSUES AND CONSERVATION STRATEGIES". *Natural Resources and Biodiversity of Uttarakhand*.