

Biodiversity Conservation in the Western Ghats

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Abstract

The Western Ghats is one of the world's most significant biodiversity hotspots, characterized by high levels of species richness and endemism. This mountain range supports diverse ecosystems, including tropical forests, grasslands, and wetlands, which provide vital ecological services. However, increasing anthropogenic pressures such as deforestation, habitat fragmentation, agricultural expansion, and climate change have severely threatened biodiversity in the region. This article examines the importance of biodiversity conservation in the Western Ghats, the major threats to its ecological integrity, and the need for effective conservation strategies to ensure long-term sustainability.

Keywords: Biodiversity conservation, Western Ghats, endemic species, habitat fragmentation, ecosystem services

Introduction

The Western Ghats is a globally recognized biodiversity hotspot that extends along the western coast of India and harbors a remarkable diversity of flora and fauna. The region is home to a large number of endemic plant and animal species, many of which are found nowhere else in the world [1]. Plastics enter coastal zones through multiple pathways, including land-based waste mismanagement, riverine transport, fishing activities, and coastal tourism. The durability and low degradation rate of plastics allow them to accumulate in coastal sediments, mangroves, coral reefs, and beaches [2]. Over time, larger plastic items break down into smaller fragments known as microplastics, which are easily ingested by marine organisms. Studies have shown that microplastics are present across all trophic levels, from plankton to fish and seabirds, raising concerns about bioaccumulation

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and ecosystem health [3]. Plastic pollution poses significant physical and chemical hazards to marine life. Entanglement, ingestion, and habitat alteration caused by plastic debris lead to injury, reduced reproductive success, and mortality in many species [4]. Additionally, plastics can act as carriers for toxic chemicals and invasive microorganisms, further amplifying their ecological impacts. The socio-economic implications of plastic pollution in coastal regions are also substantial, affecting fisheries, tourism, and coastal livelihoods [5]. Cleanup costs and loss of ecosystem services place a financial burden on coastal communities. Addressing plastic pollution therefore requires integrated approaches involving waste management improvements, policy interventions, public awareness, and international cooperation to reduce plastic production and enhance recycling and recovery.

Conclusion

Biodiversity conservation in the Western Ghats is crucial for maintaining ecological balance, supporting livelihoods, and ensuring long-term environmental sustainability. Anthropogenic pressures and climate change continue to pose serious threats to this fragile ecosystem. Implementing integrated conservation strategies, improving habitat connectivity, and involving local communities in conservation efforts are vital for protecting the unique biodiversity of the Western Ghats. Sustained commitment from policymakers, researchers, and stakeholders is essential to safeguard this global biodiversity hotspot for future generations.

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