

## Wetland Degradation and Restoration

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### Abstract

Wetlands are among the most productive ecosystems, providing critical services such as water purification, flood control, carbon sequestration, and biodiversity support. Despite their ecological importance, wetlands worldwide are experiencing rapid degradation due to land-use change, pollution, drainage, and climate change. The loss and degradation of wetlands threaten ecological balance and human livelihoods. This article examines the causes and impacts of wetland degradation and emphasizes the role of wetland restoration in enhancing ecosystem resilience and sustainability.

*Keywords: Wetland degradation, wetland restoration, ecosystem services, biodiversity, water management*

### Introduction

Wetlands play a vital role in maintaining ecological stability by regulating hydrological processes, supporting biodiversity, and improving water quality. They act as natural buffers against floods and droughts while providing habitats for a wide range of plant and animal species [1]. However, increasing human activities have led to significant wetland degradation and loss across many regions of the world. Climate change has intensified wetland degradation by affecting precipitation patterns, temperature regimes, and hydrological cycles [4]. Changes in water availability and increased frequency of extreme events reduce wetland resilience and biodiversity. Degraded wetlands lose their capacity to sequester carbon, regulate water flows, and support livelihoods dependent on wetland resources. Wetland restoration has gained attention as an effective strategy to recover lost ecosystem functions and enhance ecological resilience [5]. Restoration efforts include re-

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establishing natural hydrology, controlling invasive species, and improving water quality. Successful wetland conservation and restoration require integrated management approaches, stakeholder participation, and long-term monitoring.

### **Conclusion**

Wetland degradation poses serious threats to biodiversity, water resources, and ecosystem services. Restoring degraded wetlands is essential for enhancing ecological resilience and supporting sustainable development. Effective restoration strategies, combined with strong policy support and community involvement, can help reverse wetland loss and improve environmental quality. Protecting and restoring wetlands is critical for maintaining ecological balance and ensuring long-term environmental sustainability.

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