

Impact of Climate Change on Biodiversity



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Abstract

Anthropogenic activities are exacerbating climate change and significant alterations to biodiversity are envisioned to transpire if the situation is to continue unabated. Habitat loss, migrations and disruptions in ecosystem food webs are amongst the adverse ramifications of climate change. The paper attempted to highlight the importance of biodiversity and the negative impacts of climate change on soils, plants and animals.

Keywords: Biodiversity; Climate change; Ecosystems; Habitat loss

Introduction

Biodiversity is the cornerstone of ecosystem functioning and also plays a fundamental role in human life. Anthropogenic activities are exacerbating climate change and have led to loss of biodiversity in numerous parts of the globe. The wrath of climate change has been evident on landscapes, freshwaters, rainforests and coastal ecosystems. The decline of global biodiversity has been rapid over the past century due to the loss of favorable conditions for growth and survival of certain species. The distribution of species in ecosystems is determined by climatic factors and thus changes in the climate affect their distribution and diversity [1].

Changes in Biodiversity

Soil

The interaction of living and non-living components of the soil is crucial for the thriving of forests and native species. Climate change culminates in alterations in soil properties such as soil temperature and moisture which in turn influences biodiversity of soil dwelling biota [2]. Warmer temperatures have the potential to increase the rate of evapotranspiration and consequently, yield dryer cracked soil surfaces. Subsequently, poor soil health will ultimately affect the growth of many plant species and will restrict their diversity.

Plants

Trees and plants are predominantly responsive to climate changes since they have restricted adaptive methods to deal with

environmental disruptions. It has been predicted that climate change will disrupt the profusion of plants and trees in forests. Moreover, climate change alters the metabolism of plants by inducing late or early flowering and sometimes may lengthen vegetative growth [3]. The frequent outbreak of plant pathogens and diseases is also a phenomenon associated with climate change that will impact plant biodiversity. According to [4], plants will shift to elevated latitudes as a consequence of climate change. The occurrence of alien invasive species is predicted to escalate as a consequence of climate [5]. This would result in competition for resources and ultimately extinction of species.

Animals

The morphology and behavior of certain species has undergone rapid alterations as a result of climatic changes [6]. The impact of climate change on species has been documented in many parts of the globe. The arctic regions have been negatively impacted by climatic changes as warmer temperatures have caused snow cover to subside dramatically. Consequently, this has impacted animals like the polar bear through habitat destruction and limited food resources. Climate change not only influences animal behavior but changes reproductive cycles of some species. Warmer temperatures have been observed to cause accelerated sexual maturity in turtles [7]. In addition, male frogs have been observed to call mates frequently during periods of warmer temperatures [8]. Climate change has also been said to cause migration of certain species to places with favorable conditions [9].

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