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Impact of Climate Change on Forests

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Review Article

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INTRODUCTION

Forests maintain a wide relationship with environment and ecosystem. Hence any change in the climate shows its impact on forests [1].

Climatic conditions are known to change forest growth/ productivity directly or indirectly. It also affects the CO_2 cycle. This happens due to the complex interaction the forest ecosystems. An alteration in temperature changes the weather pattern which also affects the availability of water, requirement of soil nutrients, and sunlight. Ultimately, this affects the growth of trees and thus the ability of trees to survive [2,3]. Global warming increases the probability of forest fires. Sometimes, the climatic changes lead to destruction of forests and also extinction of species or change in species composition. Migration of living organisms is seen due to climatic changes. On the other hand, mild climate as in winters are susceptible to more pests and diseases.

The direct effects on forests caused by climate change, such as droughts, storms, fires and insect infestations, The productivity of managed forests is also affected by fires and insect infestations, storms and droughts which are the direct effects of forests caused by climate change [4-6]. Both the supply of and demand for forests products will be affected by climate change related events. The lives of millions of people who are dependent on forests and associated resources for survival affected globally.

Factors of Climate Changes

Carbondioxide increase shows a positive and a negative impact on the forests. It majorly affects the complex interactions among precipitation, temperature, availability of nutrients

High temperature prolongs growing season but the production may be limited due to availability of water. This could lead to droughts. But temperature effects could either be positive or negative [1].

As water is the key source for photosynthesis in plants, availability of water affects the plant productivity. Productivity increases in dry areas when water availability is increased. Rising temperature without precipitation can lead to droughts. This influences the nutrient availability in soils that leads to enhanced loss in nitrogen.

Moderate or low fires have less or no impact on but a wide spread fire renders the soil prone to erosion or less able to soak up water. Fires in forests mainly lead to ash entrapment, removal of organic matter, porosity, loss of nutrients, leaching, and soil erosion [5]. Due to this large amount of carbon is released into the atmosphere.

Storm and wind throw also affect the forest productivity. Reduction in timber yield is one major example. Hurricanes and windstorm causes damage to the forests. Due to this large amount of carbon is released [7].

Flooding is another dangerous factor affecting the forest growth. Flooding affects majorly during growing season.

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Conclusion

Most of the suggested solutions to the climatic crisis include planting trees, reducing emissions from deforestation and degradation, salvaging dead, dying timber, migration of species that are more productive under new climatic conditions. Necessary proactive measures should be taken by the foresters to minimize the negative consequences on forests due to climate changes [8]. Having a good understanding of regional differences in vulnerability to climate change is crucial for targeting adaptation measures. Hence, sorest planning and management should take prior methods to prevent the above hazardous effects on forests.

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