Impact of Climate Change on Plant Biodiversity

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Abstract

Climate change affects biodiversity as climate changes affect local temperatures, which may or may not be favorable for all species. Climate change and biodiversity are two issues that are linked with each other. Changes in global temperature and climate have directly impacted the ability of all plant and animal species to survive.Climate change is thought to be one of several factors causing biodiversity loss (human-triggered mass extinction), which is changing the distribution and abundance of many plants. Climate change has altered marine, terrestrial, and freshwater ecosystems around the world. It has caused the loss of local species, increased diseases, and driven mass mortality of plants and animals.

Introduction :

The world's temperature and climate have changed noticeably over the past few years due to global warming trends. It has directly impacted all plant and animal species' ability to survive. It is also anticipated that many plants and animal species may face threats to their existence if the temperature rises further. The foundation of life on Earth is robust biodiversity and healthy ecosystems, and climate change impacts many species' habitats. Climate change refers to long-term changes in local, global or regional temperature and weather due to human activities. For 1000s of years, the relationship between lifeforms and the weather have been in a delicate balance conducive for the existence of all lifeforms on this Planet. After the industrial revolution (1850) this balance is gradually changing and the change has become apparent from the middle of the twentieth century. Now it has become a major threat to the wellbeing of humans and the sustainability of biodiversity.

In the atmosphere, gases such as water vapour, carbon dioxide, ozone, and methane act like the glass roof of a greenhouse by trapping heat and warming the planet. These gases are called greenhouse gases. The natural levels of these gases are being supplemented by emissions resulting from human activities,such as the burning of fossil fuels, farming activities and land-use changes. As a result, the Earth's surface and lower atmosphere are warming. Even

small rises in temperature are accompanied by many other changes. Rising levels of greenhouse gases are already changing the climate. Climate change poses major threats to biodiversity. Although a certain variation of climate is compatible with the ecosystem survival and its function, the very rapid shift is detrimental to the variety of life. Climate change is expected to exacerbate biodiversity loss in the future.

Many impacts of climate change – including drought, bushfires, storms, ocean acidification, sea level rise and global warming – affect biodiversity. Loss of biodiversity can lead to land degradation, effects on water supply and changes in farming productivity. Many plants and animals cannot adapt to the effects of climate change. NSW has 1000 plant and animal species and ecological communities that are at risk of extinction. Managing our biodiversity is an important way to prevent further biodiversity loss and extinctions.Climate change is a major threat to biodiversity. It can cause a decline in the number and distribution of species, as well as affect their behavior and ecological interactions. The rise in global temperature, sea level, and extreme weather events can cause habitat loss, changes in the timing of seasonal events, and an increase in disease outbreaks, which can lead to the extinction of species.

Harmful Effects of Climate Change on Plant Biodiversity :

1. Lowered Productivity : Longer droughts and increased number of heat waves will stress plants, causing them to be less productive. Plant productivity supports wildlife and serves as the basis of a multitude of food chains. The decline of plants means there will be less food, which can further lead to declines in animal populations also.
2. Spread of Invasive Plants : When environmental conditions change, native species can lose their natural advantages and invasive species have a greater opportunity to thrive and in extreme cases, take over landscapes.
3. Vulnerability to Pests : Native plants can lose resiliency due to climate-change induced stressors, making them more vulnerable to invasive insect pests. As the weather warms, more destructive pests will survive the milder winters, have more reproductive success, and their growing populations will cause more damage to the native tree and plant species.
4. Saltwater Intrusion : As sea level rises, water from the surrounding areas will intrude into low-lying plant ecosystems. This means an increased risk of saltwater intrusion in

fresh ground water or freshwater wells, which can be damaging to plants and disrupt wetland ecosystems.

5. Altered Ecosystem Structure : As temperatures increase and soil moisture changes, plant and vegetative zones are shifting in response. Trees are forced to migrate to higher elevations to find cooler, more suitable climates for their survival. Plants experiencing a shift in their range will affect the ecosystem they are leaving and the system they are moving into.

Conclusion :

Scenarios related to the impact of climate change on biodiversity are made up continuously, often predicting fast paced extinction of species, loss of natural habitats and shifts in the distribution and abundance of species during the first decade of this 21st century. In this matter "Climate Change" may be a familiar term by now, but further attention and action is urgently needed. Even a modest and slow warming of the climate will have complex consequences in terms of species numbers and distributions, thus potentially disrupting ecosystem functioning and services.

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