

Global warming effect on the tundra biome research paper sample

[Environment](#), [Animals](#)



Introduction

In the recent past, many scientists have provided evidence on how global warming that result from greenhouse gases may adversely affect the arctic regions (including tundra biome). These scientists argue that the excess abundant of greenhouse gases will cause global warming of the earth's climate in the near future. This global rise in temperature is more likely to damage the Antarctic and Arctic biome that than all other biome. This is because global warming is expected to shorten arctic tundra's winters and melt snow that covers permafrost. As a result of this, there will be flooding in many coastal areas. In addition, plants will die while animal will be forced to change their migrating patterns (Ruez, 2009). The consequence that this global warming will have on the tundra biome cannot even be predicated. Scientists say they still do not know the scrupulous results of global warming in the world's climate on the tundra biome. However, they say that tundra biome is one of the fragile biome and, therefore, will be the first to reflect any change caused by global warming in the earth. This paper will explore some of the effects that global warming will cause in the Tundra biome.

Background

About the area

The tundra biome is mainly branded by its climatic extremes and multifaceted inter-affiliations between organisms and the environment. It is a world of any species with several seasonal changes, and interdependencies of both animals and plants. This means that any change that affect part of this biome has far-reaching effects on the whole ecosystem. The Tundra

biome landscape is shaped by ice shapes allowing plant life to extremely grow in this environment. Tundra is permanently covered a frozen underground layer that is called permafrost. Total annual sleet averages 25cm, with an average annual snowfall of about 102cm. Between 1959 and 2009, the regular annual temperature amplified by 2.68C, with the extreme increase occurring during the winter months. Contrasts of monthly average air temperatures endorse a trend of increasing temperature in every month in the year (Ruez, 2009, p. 56).

Discussion

The Tundra biome has warmed considerably over the 20th Century predominantly the last few years. The Tundra climate simulations project continued warming with a 4-5oC mean-increase by 2100. The winters have warmed more than summers, melting of land and sea ice anticipated increasing stream discharge and contributes to the rising sea level the mean-annual Scotch mist anticipated increasing. Global warming has been accompanied by overall climate variability and an increase in dangerous weather events. The prompt warming in the Tundra biome is at present bringing about considerable socioeconomic and ecological impacts many of which result from the thawing permafrost, shoreline erosion, and flooding, resulting from loss of protective sea ice and storm surges (Miller & Scott, 2008, p. 142).

Plants and animals survival in the Tundra biome region has been endangered by global warming. This has become obvious for every all animals and plants in this place who discerns nature in which they live in. Tundra global

warming is threatening biodiversity existence. The Tundra area is not the only place exaggerated by global warming; the whole world is also speaking about it. Organizations have jumped up, and Government is spending billions on closely observing and looking global warming in the Tundra biome regions. The temples of science in Tundra biome regions have also come with many causes for global warming in the place. Intellectuals organizations with huge finance have organized a summit to discuss ways to elucidate this risk that humanity is fronting. Business houses and organization have jumped the lobby to promote their brand or cultivate products to cater this new hype about climate alteration. The point is that it is hard know the actual reason for Tundra global warming; therefore, the people have no real answer to survive the disaster coming their way. Climate change has affected the Tundra biome in the following ways:

- I. Endangered animals of the Tundra
- II. Endangered plants of the Tundra
- III. Plants thriving in the Tundra through the global warming
- IV. Animals thriving in the Tundra through the global warming
- V. The melting of permafrost in the Tundra and its effects on wild life
- VI. The melting of permafrost in the Tundra and its effects on plant life

1. Endangered animals of the Tundra

The Arctic Fox is also a species of arctic fox that are at a risk of being endangered. For example in Russia, one species is almost to extinction due to infestation of mange. These are caused by parasites stretched by dogs. It is also important to denote that there are other species of the arctic in this region, and they include Norway, Sweden, Finland, and Kola Peninsula

threatened by fur.

The Caribou is a species of animal that is living under these harsh conditions from the change in climate of this region. They are found in Queen Elizabeth Islands, and they have been affected from loss of their diet. Increased precipitation caused by rising in temperatures, have led to mosses and lichens (basic for their winter diet) to be buried by the large amounts of snow. There is a reduction of food for this species in summer.

Musk Ox is victims of the change in climate, in this biome. They are greatly affected from the loss of diet and the very cold weather during the winter that also leads to their migration. Although these effects they are recovering from the conditions through adaptation. Polar bear is prone to these changing conditions of the climate which is melting the snow endangering their habitat. It has also created a shortage of food in their ecosystem. Their main food is the seals which are reducing in number due to reduction of ice. Tundra wildlife has been affected due to the changing in climate.

2. Endangered plants of the Tundra

Considerably, change in climate, in the region, has also resulted to subsequent effects on plants found here. The conditions affecting these plants are: extreme low temperatures, lack of nutrient availability and stunted growing seasons. These plants include the following; Aleutian Worm wood is an endangered plant in Alaska. It is a perennial plant and thus the long periods of winter s that have been brought by climate change (Miller & Scott, 2008, p. 144).

Bering Sea Douglasia is an endangered species that grows on this biome. It is threatened due to the long periods of winter and reduction in nutrients due

to frozen soils. Being a short plant, it is covered with snow causing it to freeze. Sessile-Leaved Scurvy -Grass is an annual plant found in the mountainous tundra regions. Frizzing of soils and lack of nutrients in the soils are resulting to extinction of the plant.

Aleutian Shield Fern lives on cliffs and rocky outcropping regions of the Central Aleutian Islands. It is considered to be on danger of extinction due to the harsh conditions of climate change (Ruez, 2009, p. 77). Calder`s Lovage plant (that its trend of the population) has significantly decreased in the tundra biome has it is also endangered by the harsh conditions brought by the change of climate.

3. Plants thriving in the Tundra through the global warming

Plants that are thriving in the tundra through global warming include those which are flourishing due to factors of increase in temperature and other factors evident in global warming. The effect of global warming to these plants is a positive effect. The plants under this factor include mosses, lichens and Musk Ox. These plants are able to survive from the minimum moisture which mainly comes from the list melted ice. The plants are also able to thrive from global warming through the cloudiness that avoids the loss of heat produced from the respiring plants in the biome. In addition, the rise in temperatures due to global warming in this region results to layers of permafrost to melt completely thus the plants like the mosses and lichens can survive (James & McCarthy, 2002)

4. Animals thriving in the Tundra through the global warming

The animals thriving in the tundra biome through global warming are the bird community. They are greatly adapting to the presence of warmth in the

long seasons of cold weather and fish which could stay under frozen water for the long period. The global warming has led to melting of the frozen water to allow penetration of oxygen and heat. Butterflies are also finding it a good habit as they can complete their life cycle with favorable temperatures. Thriving in the new conditions created also are the Killer Whales, Trumpeter Swans, Wandering Albatrosses, Jellyfish, and Mosquitoes. Orcas can now hunt more effectively in Arctic sea since their prey has little patches of ice in which they can hide. Trumpeter Swans are at good with the warming North which form a breeding ground. Albatrosses are able to hunt more quickly in the stronger air currents and spend much time with their chicks (Ruez, 2007, p. 124).

5. The melting of permafrost in the Tundra and its effects on wild life

The melting of permafrost in the tundra is as a result of various factors. The main factor regards the increase in global warming. Global warming has resulted to the melting of ice and snow on the mountainous tundra region with permafrost. This is a permanently frozen rock, soil or sediment. Migration of birds, caribou, and reindeer are evident due to this effect. In the biome due to this effect, new species of plants are likely to come up or migrate into the habitat since it is favorable for their existence. Migration of animals is now at the limit since the habitat can sustain the animals from the favorable conditions and thus enough diet. For instance, the Albatrosses are able to hunt for their prey easily due to the melted ice. Animals like Sea Seals that hide under frozen permafrost and snow are at great danger of been exploited. The greenhouse gas emission from methane has increased due permafrost thaw and thus impacting wildlife negatively. The subsidence

of the landscape that at times results to dangerous holes on the ground become fatal to the wildlife like the polar bear (Moss & Watson, 1997, p. 134).

6. The melting of permafrost in the Tundra and its effects on plant life
Melting of permafrost due to change in climate, in the tundra biome, considerably has significant effects to the plants of this region. The major effect of melting permafrost though is the “drunken forests” which are as a result of ground subsidence. This is when the ice held together in the soil melts and thus the soil collapses. This results to an irregular landscape that leads to trees and other vegetation leaning. Plant life has also been affected by the melting of permafrost. The permafrost melting will lead to changes in plant species. Considerably, the typical tundra vegetation is overtaken being overtaken by evergreen shrubs and trees are emerging due to the warm temperatures. Thus, productivity of the area is likely to increase. This is due to the fact that the soils are gaining fertility, and the warm climate is allowing for the various plant biological processes to take place. The productivity in the tundra region is to flourish as favorable conditions are introduced to the habitat. Melting of permafrost will also release high amount of carbon that leads to deforestation.

Conclusion

In conclusion, climate change in the tundra region has various impacts on its biome that influences the habitat. The wildlife and plant cover material in this region is basically supported by tolerant, low temperatures inhibited by frozen water over a long period of time. Adaptation measures are to be

engaged by animals and vegetation surviving in the region. However, the region is gradually changing due to climatic changes in the weather pattern.

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