

THE EFFECTS OF DEFORESTATION AND CLIMATE CHANGE ON THE BIODIVERSITY WITHIN SOUTH AFRICA'S AGRICULTURAL SECTOR.

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Abstract

It is evident that there is a decline in the agricultural industry and its biodiversity due to the effects of climate change and deforestation. It is important to understand the impact of these threats and the severity of the need to alleviate them. A variety of solutions can be put in place throughout one's daily life to aid in reducing the impacts of these threats on the agricultural sector in South Africa. This assignment explores such solutions and then importance of them on increasing the viability of the Agricultural for future generations to come.

Keywords

Biodiversity, Climate change, Deforestation, Ramifications, Agriculture

Introduction:

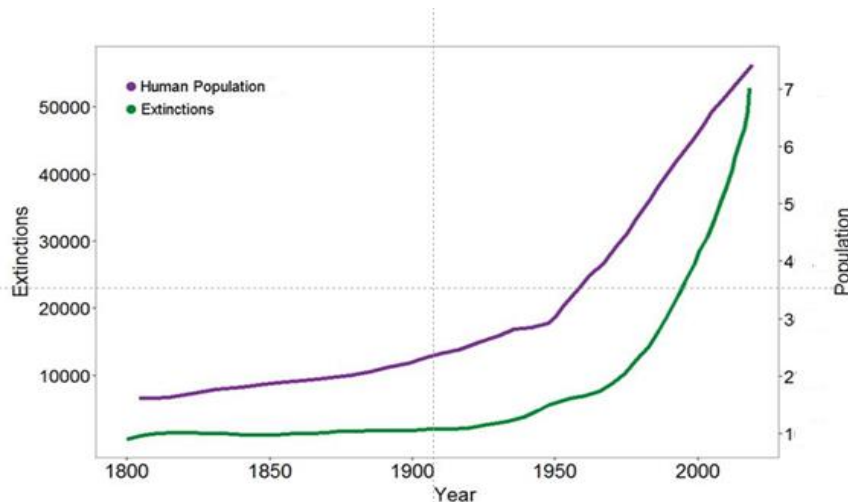
Biodiversity is the variety of plant and animal species in the biosphere or a specific habitat, a high level of which is usually considered to be significant and desired (Oxford Languages, 2022). Over several centuries, biodiversity has faced multiple threats. These threats continue to dominate civilization's chances of survival on a daily basis. For instance, the lack of oxygen present in the environment is a danger, since it is a vital component for the survival of humanity. On numerous occasions, there has been a high percentage of decline in flora and fauna, due to processes required for economic growth, such as farming. An assortment of possible solutions and remedies are available to limit the effect of modern threats in the agricultural sector, within the vast biodiversity in South Africa. However, the two most predominant threats remain climate change and deforestation. Nevertheless, there is always a vast extent to which one can implement solutions, particularly relevant and beneficial to limiting such impacts within South Africa's Agricultural sector.

Influences of the two predominant threats to biodiversity:

Currently, the leading threats that intensely impact agricultural biodiversity are climate change and deforestation. Deforestation is the destruction of many habitats for economic uses (Schultz *et al*, 2011). The human population loses a vast amount of biodiversity to meet the demand for economic growth, due to the need for land, resources, housing, the development of roads, and the production of paper (Paiva, *et al*, 2020). However, climate change is one of the most severe threats and has greater prominence than deforestation. Climate change inevitably affects both fauna and flora within South Africa (Dantas *et al*, 2018). These effects are attributed mainly to the rapid rate at which fossil fuels are carbonised for energy consumption. Energy is a vital component of daily life in society. In addition, how the human population disposes of carbonized waste contributes to pollution. Climate change is present because human activities have released large amounts of carbon dioxide and other greenhouse gases into the atmosphere. For instance, the human population, as a main contributor climate change, also indirectly affects the surrounding environment as climate change in turn rapidly affects ecosystems and a species' ability to adapt. Inevitably, this contributes to biodiversity loss (Maynard *et al*, 2020). The graph below clearly displays how these threats have had an increasingly harmful sway on

biodiversity (Scott, Mapping human pressures on biodiversity across the planet uncover anthropogenic threat complexes, 2008). “As shown by J.M. Scott (2008), shortly after World War II, humankind entered a phase of almost exponential population growth, going from around 3 billion people to 7.2 billion people nowadays. Biodiversity loss is a factor that follows that trend closely.” (Dantas *et al*, 2018)

Figure 1.



Solutions and ramifications:

Nonetheless, one can implement a vast selection of resolutions to combat these threats and limit their consequences. Deforestation puts pressure on the natural ecosystem, resulting in a decrease and loss of viable vegetation coverage (Bowler *et al*, 2020). It can lead certain tree species to extinction and affects the biodiversity of plant species in an environment. On the other hand, one can limit these consequences by using crop rotation rather than terminating more habitats for new farming land. Furthermore, policies and monitoring systems can be developed for conservation areas (Guo *et al*, 2019). In addition, the declaration of protected areas limits the amount of land accessible for deforestation, thus, for example, reducing the number of contributing fires to carbon emissions, which drastically increases the effects of global warming relevant to climate change loss (Maynard *et al*, 2020). An additional resulting factor of the reduction in the consequences of deforestation will mean that there will be more tree plantations within these newly declared protected regions and better efforts towards reducing carbon emissions. Plants are photosynthetic and aid with the scaling down of carbon emissions while increasing

the production of oxygen, which is vital for the survival of all organisms. These implementations are also highly relevant to agricultural biodiversity.

Relevance within the agricultural sector in South Africa

Changes within the agricultural sector can improve the quality and quantity of food products and their demand in society (Paiva *et al*, 2020). Various methods are relevant to retaining soil minerals and nutrients by combating temperature change and decreasing global pesticide sales (McNeely *et al*, 1992). Some positive methods against deforestation and climate change include crop rotation, use of eco-friendly pesticides, more nutrient based products for eroded soil, and more. Improvements are visible through the preservation of the biodiversity of the land's nutrients and bacteria. Furthermore, larger crop yields and better quality production of crops within protected areas are experienced by following such resolutions. This will create grazing plots for animals such as cattle, which, in turn, will have a beneficial effect on the quality of food production. Moreover, it aids in combating the rapid growth of the economy in a healthier way, with fewer risks such as poor quality food, meat, and diseases from better cultivation methods. It is most likely to conserve and preserve the biodiversity within the agricultural sector for generations to come (Maynard *et al*, 2020).

Conclusion:

There is a variety of potential resolutions and remedies available to restrain the influence of threats that pose significant consequences to South Africa's agricultural sector and its biodiversity. The loss of habitats results in a massive depreciation of food resources, suitable land for crop plantations, farming, and puts pressure on the natural ecosystem. This inevitably leads to the extinction of species in a habitat. A variety of resolutions include the declaration of newly protected areas to limit the amount of land unrestricted to deforestation (Bowler *et al*, 2020). Planting more trees will lower carbon emissions, as plants are photosynthetic. More plantations enhance the quality and quantity of food products to satisfy economic demand that combats the influence of climate change, leading to a larger crop yield and better quality production of plants within protected areas. In doing so, grazing plots for larger organisms such as cattle will be readily available to combat the rapid growth of an economy with fewer hazards such as poor grades of food, meat, and ailments from

better cultivation tactics. Similarly, there are various things one can do throughout everyday life that will drastically assist in relieving the effects of the threats on biodiversity, like simply supporting local farms, planting local flowers, fruits, vegetables, Et cetera.

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