

# Free boreal forest whose state is s3 essay sample

[Sociology](#), [Population](#)



- (6 pt.) Describe the effects harvest, disturbance, and nutrient enrichment by humans have had on other wild populations. Be sure to explain how these activities act as selective agents and what the most-fit phenotype will be under these circumstances.

Human activities have emerged to be the most precarious and dreadful to the wild population. Notably, human interfere with biodiversity and wild population in a number of ways. Overharvesting includes activities such as target hunting, gathering or fishing for a particular species. Overharvesting has been associated with extinction of some species of organisms. For example, advancement in technology after the Second World War led to development of more advance equipment that could be used to exploit natural resources which include the flora and fauna. For instance, fishing in the oceans and seas especially in Japan led to over-extraction of a certain variety of fish species.

Disturbance o the other hand refers to activities that interfere with the natural habitat of the wild populations. For example, industrial expansion has led to the destruction of natural habitats of the wild population leading to the threatening of species of living organisms. Pollution also leads to the killing of some species of living organisms. For example, discharging chemical and industrial effluents into the rivers and seas have led to extinction certain species. It is important to note that the addition of nutrients in the seas and rivers have also led o emergence and overgrowth of aquatic plants such as algae and spirogyra.

- You have been hired to manage an endangered plant community in Michigan using the Michigan Natural Features Inventory (<http://mnfi. anr>.

msu. edu/communities/index. cfm). The community must have an S1, S2, or S3 status. Read the short description of the community of your choice, and identify the species to use as an indicator (flagship) species. Assume that your community occurs in numerous locations and that your indicator species is abundant in some locations, occurring

- (2 pt.) What is the name of your threatened community?

- 2 pt.) What is the (common or Latin) name of your indicator (plant) species?

### **Abies balsamea**

- Why did you choose this community and plant species?

The homogeneity of the plant species in this forest is just awesome. The canopy formed by the hard wood conifers in this forest makes the community worth studying. *Abies balsamea* is the most dominant species in the community.

- 3 pt.) Briefly describe how environmental stress (e. g., drought) will affect your indicator species in locations where it is abundant versus where it is infrequent

Environmental stress factors such as drought and prevalence spruce budworm insect negatively affect this *Abies balsamea*. The species is very delicate and gets seriously affected by environmental stressors. The rate of reproduction goes down leading to decrease in the number of species.

- (7pts) Describe how distance between locations of your community may affect gene flow, the genetic diversity of your indicator species, and why the genetic diversity of the population is important for its long-term persistence.

Boreal forest is located in proximity to the Great Lakes, and this causes moderation of the microclimate of the entire community. There is a wide

<https://assignbuster.com/free-boreal-forest-whose-state-is-s3-essay-sample/>

variation in the climatic and environmental conditions that poses a great challenge to the species found in this community. In its area of location, the prevailing conditions is characterized by high humidity, greater snowfall, lower summer temperatures, warmer winter temperatures, greater fog in summer and mist compared to the surrounding areas. This unique characteristic of the community location makes it difficult for the species found in this community to be able to flow to the adjacent areas. The implication is that the gene flow is limited and the species found in Boreal Forest can hardly survive in the nearby regions. It is the reason most of the species in the community have near extinction. Notably, is the biodiversity of boreal forest is significant for long term persistence due to the wide range of species which bear different characteristics. The different species in the community are well adapted to make them be able to survive in a highly changing climatic and environmental conditions.

- Pick out a rare or threatened predatory animal that is found in your community of choice. (Thailand or Vietnam)
- (2 pts.) What is the (common or Latin) name of your animal species?

### **Mammut americanum commonly known as Mastodons**

- Why did you choose this species?

### **Mastodons are more interesting to me due to the state concern on its extinction**

(3pt) explain what the number of grams of biomass of your threatened animal tells you about the productivity of the community.

The number of grams of Mastodon shows that the community level of productivity is very low. The rate of reproduction among the species in this

<https://assignbuster.com/free-boreal-forest-whose-state-is-s3-essay-sample/>

community is directly dependent on the biomass. This level of biomass implies that the population is becoming unsustainable by its own resources.

- (15 pts.) Part of your job is to pursue funding for the purchase of lands containing these communities and restoration efforts. Explain to an imaginary granting source (governmental, private, or non-profit) why preservation of biodiversity and its stability and frequency near urban centers and agricultural fields is important to human welfare;

Biodiversity refers to the variety of plant and animal species that make up an ecological system. Biodiversity is a rich economic resource that a country can generate surmountable income from. Looking at the importance of forests and a rich diversity in them is a tip in ice-berg. There are a number of importance attributed to biodiversity. It is noteworthy that tourism contributes immensely to the economic growth and development of the country's economy. A large percentage of tourism activities are based on biodiversity and wildlife resource. A country with a rich diversity of wildlife can attract both domestic and international tourists who will contribute immensely to economic prosperity of the country.

However, it is important to underscore the fact that biodiversity is greatly affected by human activities that threaten both the lives of the wild population as well as their habitats. As human activities intensify, biodiversity becomes negatively affected. For example, mining, fishing, forest fires, hunting, gathering, poaching, industrial activities among other human activities negatively affect biodiversity. These activities endanger the lives of the wild population making their survival rates limited. Therefore, their population deteriorates and leads to extinction. A lot of economic

benefits associated with biodiversity as discussed above are lost.

Conservation of diversity is, therefore, inevitable. Efforts should be put in place to help in the control of the endangering level to biodiversity due to human activities. Biodiversity conservation refers to the various ways through which plants and animal population in their natural habitats are protected against any form of destruction. It is a practice that leads to the development of a wide range of species and protection of the species available to increase their chances of survival. Measures need to be put in place to conserve biodiversity in order to maximize the economic benefits associated with it.

- (5 pt.) Describe the importance of legumes to humanity and terrestrial communities in general.

Legumes are a group of plants in the class of dicotyledonae. They are not only important to humanity but also to the community where they grow. To humanity, legumes are a rich source of plant proteins that are essential elements of the human diet. In the community, legumes have root nodules that contain nitrogen-fixing bacteria (*Rhizobium*) that helps in the fixation of nitrogen in the soil. The nodules help in converting nitrogen into nitrates that is readily absorbed by other plant species.

- (9pt) Explain how Earth's biodiversity (number of species) is estimated and the insights that method has for understanding the types of organisms that are lost due to habitat destruction. You may construct a graph to illustrate your points, but, your answer must have a verbal narrative.

Occurrence index of species can be used to estimate the earth's biodiversity. This method, variations in species prevalence which ranges between rare to

common is determined through standardization. The standardization is to ensure that each species is accorded equal weight. Once the range is obtained, a certain value in the continuum of the upper and the lower value is determined. This value between the upper and lower bound is known as the index value. It is usually assumed to be one hundred. The results obtained for various sampled species is then calculated through statistical procedures.

- (6 pts.) Describe the estimated rate of the current mass extinction and rank the human activities that are causing it from most important to least important

The high rate of mass extinction is contributed largely by human activities. It is evidently shown that most species of organisms have become extinct largely because of human activities. Human activities are the leading factor that contributes significantly to mass loss. Studies have shown that the current rate of extinction is almost hundred times the previously known cases. For have example, mangroves and coral reefs have been lost at the coastal regions due to human actions. Ecosystem has been converted to agriculture in most parts of the world.

- (12pts) Provide compelling evidence that humans have exhausted (over-harvested) natural populations on land and sea.

Growth in the world population has greatly affected natural population both on land and sea. It is evident in Canada that habitat removal and alteration by human activities have led to massive losses to natural population. In Canada, almost 10% of the regions with ecology have been altered. Lots of land are being converted to agricultural activities leading to destruction of

habitat of the natural population, hence, an effect on the Canadian biodiversity. For example, 87% of short grass prairie have been lost due to the conversion of the lands to agriculture. Moreover, 90% of wetlands in Canada have also been drained to obtain land for food production.

- (5pts) describe the life history traits of species most vulnerable to over-harvesting; be sure to explain why they are most vulnerable.

Passenger pigeons are among the most endangered species. They are known to be good and sweet to eat, they have feathers that make very good pillows, and their bones are used for making fertilizers. Due to these economic benefits, in the beginning of 1858, hunting of passenger pigeons emerged as a very lucrative business. Various hunting methods have been used, some of which include shotguns, traps, artillery and even burning of grass or sulfur below their roots. They flew in large flocks that make them very easy to kill. The species has almost gone extinct and known cases of the sight of passenger pigeons are only traced in history.

- (15pts) you have been hired to develop a management plan for a wild population (e. g., tuna, wild ginseng, etc.). Assume that the wild population is currently very small due to over-harvesting. Describe all of the factors you would consider to help the population return to a size that can generate 'maximum sustainable yield' (MSY). Stick to concepts that have been covered in lecture at this point in the course.

Maximum sustainable yield refers to the largest possible catch that can be obtained from a fishery stock over an indefinite period. The values is usually theoretical, but its concept is important in managing population that is endangered and is on decline. The assumption on MSY is that it is an



equivalence of half the population's carrying capacity. In order to develop an MSY model, it should be assumed that the population of the organisms in question develops and replace itself. The survival and reproductive rates of the population will increase if the harvesting rats is reduced. To help the population to attain the desired number, the rate of harvest must be kept as low as possible.

It is important to consider the stock size in order to attain the Maximum sustainable yield. The assessment of the stock will help in estimating the potential growth capacity of the population to be managed. The size of stock at the beginning helps in projecting the achievable value of population to be expected in the future.

Changes that are likely to affect the growth and increase levels of the fish in the stock also explains the possibility of achieving the Maximum sustainable yield. Changes such as natural and fishing mortality, recruitment, immigration and emigration are major factors that have the potential of determining the possibility of attaining the MSY. The population to be managed should be void of emigration and immigration effects on the ultimate fish population.

## **References**

Carl, Z. (2011, August 23). How Many Species? A Study Says 8. 7 Million, but It's Tricky. New York Times.

Kost, M. D. (2007). Natural Communities of Michigan: Classification and Description. Michigan Natural Features Inventory, Report No. 2007-21, . Michigan: Lansing, MI.

Levin, D. A. (2010). Hybridization and extinction: In protecting rare species,

<https://assignbuster.com/free-boreal-forest-whose-state-is-s3-essay-sample/>

conservationists should consider the dangers of interbreeding, which compound the more well-known threats to wildlife. . American Scientist, 90: 254.