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Awareness of Undergraduate Students towards the Health Supporting Services of Trees on the Ecosystem

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Abstract. The study was carried out to assess the awareness of undergraduate students towards the health supporting services of trees on the ecosystem. Three (3) research questions were raised to guide the study. The method adopted by the researchers was the descriptive survey research design. A review of related literature was carried out. A total of one hundred and eighty nine (189) undergraduate students in University of Benin constituted the population study sample. The instrument used for gathering data from the selected sample was a questionnaire. The reliability of the instrument was established at 0.79 using Cronbach statistics. The data collected were analyzed using descriptive statistics in form of percentages and mean. The study revealed that, the students are aware that nutrient cycling a supporting service of tree on the ecosystem, soil formation a supporting service of tree on the ecosystem, provision of habitat a supporting service of tree on the ecosystem, the respondents' benefits of the supporting services of trees on the ecosystem. The maintenance and increase of bio-diversity sustain the forest, maintaining a system of institutions, policies, regulations that supports the forest can improve the forest, supporting services of trees by increasing environmental literacy, maintenance of diverse can forest improve supporting services of trees and supporting services can be improved by incorporating the value of ecosystem into decisions to be made are strategies for improving ecosystem services. It was recommended that; trees should be regularly planted to save the mankind and the animal world.

Keywords: Trees, health, environment, awareness

1. Introduction

Globally, trees play a significant role in reducing erosion and moderating the climate. They remove carbon dioxide from the atmosphere and store large quantities of carbon in their tissues (Cole & Rapp, 2013). Trees and forests provide habitat for many species of animals and plants. Tropical rain forest is among the most bio diverse habitat in the world. Trees provide shade and shelter, timber for construction fuel for cooking and heating, and fruit for food as well as having many other uses. Trees also called forests, play an important role in the climate system in general and tropical in particular store a substantial part of the global carbon (Bonan, 2008). The tropical rain forest also holds a significant part of the world's tree species (Poorter, 2005).

Supporting services are ones which enable the on-going structure of ecosystem to endure, as well as the living creature, plants and elements within them. Supporting services are those that are necessary for the production of all other ecosystem services they differ from provisioning, regulating, and cultural services in that their impact on people are either indirect or occur over a long period of time, whereas changes in the other categories and have relatively direct and short-term impacts (Millennium Ecosystem Assessment, 2005).

Ecosystem Plants from the critical base of food chain. Through photosynthesis, plants harvest the energy of the sun, providing both food and habitats for organisms. For example, plants are fed upon by insects, which may be eaten by birds which are in turn eaten by birds of prey, and so on. The supporting services of trees can be made known if various measures of awareness are being employed, in bringing to the knowledge of people. The benefits of the supporting services of trees have been established with the reduction of erosion, moderating the climate and the removal of carbon dioxide from the atmosphere while the burden is deforestation and loss of habitat for species.

1.1 Statement of Problem

More than ever before, it has been established that changes in land use can profoundly alter landscape patterns and ecosystem functions, which compromises the supply of ecosystem services. Diverse land use does not only foster biodiversity,

but also provides potential ecosystem services such as natural pest suppression, soil conservation, nutrient retention, and crop pollination. It has been discovered that people living in places exposed to forest, lowland floodplains or unused land were generally more conscious of the benefit provided by ecosystem services. People were collectively aware of provisioning services provided by the ecosystem, such as crops, bio-fuel, natural medicine, wildlife, and several cultural services. Majority of villages in Nigeria also appropriate the spiritual value of the surrounding natural environments; to varying degrees, this appreciation is reflected by how they identify specific ecosystem services in relation to land use (Laskin, 2004).

Unfortunately, people were generally unaware of the regulating and the supporting services of trees on the ecosystem. Environmental issues that may arise as a result of cutting down of these trees are very disastrous. It is against this background that the research investigated the awareness and perception of under graduate students towards supporting services of trees on the ecosystem (Baillie & Neary, 2015).

Furthermore, awareness of supporting services on the ecosystem is requiring attention. However, much uncertainty exists about the awareness of the supporting services of tees among Nigerian students (FAO, 2014). Despite efforts to increase awareness, there is still large turnout of misconception about the supporting services of trees among undergraduate students. It is against this background that this study sought to assess the awareness of undergraduate student on the supporting services of trees on the ecosystem.

1.3 Research Question

For this study, the following research questions will serve as a guide:

- To what extent are undergraduate students aware of the supporting services of trees on the ecosystem?
- To what extent are undergraduate students aware of the benefits of the various supporting services of trees on the ecosystem?
- Are undergraduate students aware of the strategies of improving supporting services of trees?

2. Methodology

The study employed descriptive survey research design. According to burke and Christensen (2017), this design focuses on accurate description of the characteristics of a given phenomenon with a single point collection of data from research participants. The target population of this study will consist of undergraduate students of the University of Benin 2019/2020 session with the total population of 43772. The sample was 189. This was selected using random sampling techniques of balloting by replacement. Firstly, 28.57% of the 14 faculties in the University of Benin was selected, then one department was selected using convenience sampling from the four faculties selected. Lastly, simple random sampling techniques of balloting by replacement was used to select 10% from the department selected.

Table 1: Sample Distribution of Study Respondents

Faculties	Departments	Population	Sample
Agriculture	Animal sciences	470	47
Education	HSE	743	74
Life sciences	EMT	419	41
Social science	Geography	227	27
Total			189

A self-administered structured questionnaire tailored for this study was used for the collection of data from the research participants. The questionnaire consists of two sections. Section A and section B. items in section A include demographic data of participants while section B comprises of the items on the awareness of supporting services of trees. To determine if the instrument is capable of measuring what it is supposed to measure, it was subjected to series of content validity which involves the project supervisor and experts in the Departments of Health Safety and Environmental Education, University of Benin, who are required to make corrections, comments and suggestions where necessary. The reliability of the instrument was ascertained after a pilot study of twenty students from outside the sample group but from the population. The data generated was analyzed using Cronbach Alpha. An Alpha value of 0.79 was obtained. The instrument will be analyzed using descriptive statistics such as percentage and frequency.

3. Result

Table 2: Awareness of health supporting services of trees on the ecosystem

S/N	ITEMS	Aware (%)	Frequency	Unaware (%)	Frequency
1	Is nutrient cycling a supporting service of tree on the ecosystem?	96.2	182	3.8	7
2	Is soil formation a supporting service of tree on the ecosystem?	91.5	173	8.5	16
3	Is provision of habitat a supporting service of tree on the ecosystem?	92.1	174	7.9	15
4	Do tree support the ecosystem in primary production?	89.1	168	10.9	21
5	Do trees support the ecosystem in the prevention of erosion?	88.2	167	11.9	22
6	Do trees support the ecosystem through the completion of the Nitrogen, Phosphorus and Sulphur cycle?	79.4	150	20.6	39
7	Is the provision of protection to the earthworm population a supporting service of trees on the eco system?	81.5	154	18.5	35
8	Do trees help in the creation of organic compounds and plants biomass for atmospheric CO_2 in4he eco system?	85.7	161	14.3	28
9	Trees helps in the transport of mineral nutrient for plant growth	94.7	179	5.3	10
10	Do supporting services of trees help in controlling climate change?	85.7	162	14.3	27
	TOTAL	88.41	167	11.59	22

The data above in Table 2 revealed that the 96.2% respondents are aware that nutrient cycling is a supporting service of tree on the eco system while 3.8% respondents were not aware. It also revealed that 91.5% respondents are aware that soil formation a supporting service of tree on the eco system while 8.5% respondents are no aware. It also revealed that majority of the respondents (92.1%) are aware that habitat is a supporting service of tree on the eco system, tree support the ecosystem in primary production (89.1%), trees support the eco system in the prevention of erosion (88.2%), trees support the ecosystem through the completion of the Nitrogen, Phosphorus and Sulphur cycle (79.4%), provision of protection to the earthworm population is a supporting service of trees on the eco system (81.5%), trees help in the creation of organic compounds and plants biomass for atmospheric CO_2 in4he eco system (85.7%). It revealed that 94.7% respondents are also aware that trees help in the transport of mineral nutrient for plant growth and 85.7% are aware that supporting services of trees help in controlling climate change In summary, the finding in the table revealed that majority of the respondents are aware of the health supporting services of trees.

Table 3: Perceived benefits of the supporting services of trees on the eco system

S/N	ITEMS	AGREE (%)	Frequency	DISAGREE (%)	Frequency
1	Do you enjoy air regulation where trees are present?	85.7	162	14.3	27
2	Have enjoy spiritual enrichment from trees?	43.4	82	56.6	107
3	Are you satisfied with the aesthetic services of trees?	85.7	162	14.3	27
4	Have you enjoy recreation from trees?	73.3	138	26.7	51
5	Do you enjoy temperature regulation by trees?	70.9	134	29.1	55
	TOTAL	71.80	135.6	28.2	53.4

The data above in Table 3, it revealed that 85.7% revealed that they enjoy air regulation where trees are present while 14.3% respondents disagreed. It revealed that 43.4% respondents agreed that they enjoy spiritual enrichment from trees while 56.6% respondents disagreed. It revealed that 85.7% respondents they are satisfied with the aesthetic services of trees while 14.3% respondents disagreed. It also revealed that 73.3% respondents agreed that they enjoy recreation from trees while 26.7% respondents disagreed. It also revealed that 70.9% respondents agreed that they enjoy temperature regulation by trees while 29.1% disagreed.

In summary of Table 3, it revealed that the total percentage of 71.80% respondents agreed that they have benefited from the supporting services of trees on the ecosystem while 28.2% disagreed.

Table 4: Perceived Strategies for improving eco system services

S/N	ITEMS	AGREE (%)	FREQUENCY	DISAGREE (%)	FREQUENCY
1	Maintenance and increase of bio-diversity sustain the forest	92.5	175	7.5	14
2	Do you think maintaining a system of institutions, policies, regulations that supports the forest can improve the forest?	84.7	160	10.1	29
3	You can improve supporting services of trees by increasing environmental literacy	89.9	170	9.1	19
4	Maintenance of diverse can forest improve supporting services of trees	85.7	162	14.3	27
5	Supporting services can be improved by incorporating the value of eco system into decisions to be made	91.5	173	8.5	16
	TOTAL	88.66	168	11.34	21

The data above in Table 4, it revealed 93.5% respondents agreed that maintenance and increase of bio-diversity sustain the forest is one of the strategies for4 improving ecosystem services while 7.5% respondents disagreed. It also revealed that 84.7% respondents agreed that maintaining a system of institutions, policies, regulations that supports the forest can improve the forest while 10.1% disagreed. It revealed that 89.9% respondents agreed that they can improve supporting services of trees by increasing environmental literacy while 9.1% respondents disagreed. It also revealed that 85.7% respondents agreed that maintenance of diverse can forest improve supporting services of trees while 14.3% respondents disagreed. It revealed that 91.5% respondents agreed that supporting services can be improved by incorporating the value of eco system into decisions to be made while 8.5% respondents disagreed.

4. Discussion of Findings

In research question one the findings revealed that revealed that the respondents are aware that nutrient cycling a supporting service of tree on the eco system, soil formation a supporting service of tree on the eco system, provision of habitat a supporting service of tree on the ecosystem, tree support the eco system in primary production, trees support the ecosystem in the prevention of erosion, trees support the ecosystem through the completion of the Nitrogen, Phosphorus and Sulphur cycle, the provision of protection to the earthworm population a supporting service of trees on the eco system, trees help in the creation of organic compounds and plants biomass for atmospheric CO_2 in4he ecosystem, trees helps in the transport of mineral nutrient for plant growth and supporting services of trees help in controlling climate change are awareness of supporting services of trees on the ecosystem. This is in line with the findings of IPCC (2007) stated that forests also influence climate by regulating air quality, temperature, and concentrations of atmospheric greenhouse gases. Trees sequester many pollutants from the air, including nitrogen dioxide, sulfur dioxide, ozone, and carbon monoxide. They provide shade and surface cooling, block winds, and restore moisture to the atmosphere through transpiration, which eventually returns to the earth as precipitation. Because plants sequester carbon in biomass through photosynthesis, they have the potential to mitigate climate change caused by increasing concentrations of atmospheric carbon dioxide (CO_2).

In research question two revealed that the respondents' benefits of the supporting services of trees on the ecosystem. This is in line with the findings of Neary (2009) stated that regulating services are the benefits obtained from an ecosystem's impact on natural processes, which influence climate, water flows, and plant reproduction. Forests play a critical role in the water cycle by capturing, storing, and transferring water, and enabling its gradual discharge over time Precipitation infiltrates forest soils, where water is stored and slowly released to plant roots, surface water resources, ground water, and the atmosphere through transpiration

In research question three revealed that maintenance and increase of bio-diversity sustain the forest, maintaining a system of institutions, policies, regulations that supports the forest can improve the forest, supporting services of trees by increasing environmental literacy, maintenance of diverse can forest improve supporting services of trees and supporting services can be improved by incorporating the value of eco system into decisions to be made are strategies for improving eco system services. This is in line with the findings of Woodland Trust (2012) maintain a system of institutions, policies, regulations, and incentives that support forest sustainability at multiple spatial scales. Increase environmental literacy and engage a wide range of stakeholders in sustainable forest management.

5. Conclusion

Trees are an important part of every community. Our streets, parks, playgrounds and backyards are lined with trees that create a peaceful, aesthetically pleasing environment. Trees increase our quality of life by bringing natural elements and wildlife habitats into urban settings. We gather under the cool shade they provide during outdoor activities with family and friends. Many neighborhoods are also the home of very old trees that serve as historic landmarks and a great source of town pride.

6. Recommendations

Base on the findings it is recommended as follows:

- Trees should be regularly planted to save the mankind and the animal world.
- Tree plantation and its after-care is a pleasing work too. We can get much pleasure in planting trees and in taking care of them.
- Students should plant trees in their school-compounds and in the front-yards, backyards and side-yards of their schools and near their own houses and in other places wherever possible.
- They should explain to their neighbours the goodness of tree-plantation and encourage them to plant and care new trees. We should consider the fact that we all need trees and trees are important to us humans.
- Save them and they will save us in return. Plant more trees and as you plant trees you are planting life too because of the fact that they are giving us fresh air, woods that we people used to build our houses. They stand as our shelter most specially to the animals, a shield to heat.

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