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Cultural Ecosystem Services Related to Habitat and Biodiversity

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ABSTRACT: The ecosystem is the idea that living organisms are continually engaged in a set of relationships with every other element constituting the environmental in which they exist. Ecosystems can be bound and discussed with tremendous variety of scope, and describe any situation where there is relationship between organism and their environment. An ecosystem is the smallest unit of biosphere that has all the characteristics to sustain life. It is a natural grouping of nutrients, mineral plants, animals and their wastes linked together by flow of food, nutrients and enegy from one part of the system to another part. Ponds, streams, seas, deserts, grasslands are all examples of ecosystem. The term ecosystem was coined in 1930 by Roy Clapham, to denote the physical and biological components of an environment considered in relation to each other as a unit. British ecologist Arthus A.G. Tansley in 1935 refined the term, describing it as the interactive system established between bioeconosis.

KEYWORDS: Ecosystem, biodiversity, ecological balance,bioeconosis, nutrlents, energy, nature, biotic and abiotic

I. INTRODUCTION

Every species within an ecosystem requires resources and energy in varying forms. The interaction of organisms and the environment can be described as cycles of energy and resources that allow the community to flourish. Although each ecosystem has its own energy and nutrient cycle these cycles also interact with each other to form biological and planetary biological cycles. The energy cycle supports life throughout the environment. There are also several biogeochemical cycles (the water cycle, the carbon cycle, the nitrogen cycle, the phosphorous cycle, etc) Which are also important to the health of ecosystems. A biogeochemical cycle is the system whereby the substances needed for life are recycled and transported throughout the environment. Carbon, hydrogen, oxygen, phosphorous and nitrogen are called macronutrients, they are used in large quantities by living things. Micronutrients are those elements utilised in trace quantities in organism, include iodine, iron, zinc and copper.

II. REVIEW OF LITERATURE

This literature review uses the classification of ecosystem services compiled for the TEEB assessment (The Economics of Ecosystems and Biodiversity) which evaluates the costs of the loss of biodiversity and the decline in ecosystem services. TEEB proposes a typology of 22 ecosystem services divided into four main categories: provisioning, regulating, habitat and cultural services, mainly following the MEA-classification (Millennium Ecosystem Assessment, MA 2005). In contrast to the MEA-classification, TEEB identified the habitat services as a separate category in order to point out the importance to provide habitat for migratory species and gene-pool protectors and omitted the supporting services such as nutrient cycling and food-chain dynamics which are seen in TEEB as a subset of ecological processes (De Groot et al. 2010)

In some papers considered in this review, authors make a clear differentiation between the terms ‘ecosystem functions’, ‘ecosystem services’ and ecosystem service ‘benefits’ (e.g. Kienast et al. 2009, Haines-Young et al. 2012, van Oudenhoven et al. 2012, Schulp et al. 2012). This differentiation is based on the cascade model (Fig. 2.1), initially suggested by Haines-Young and Potschin (2010). They use the term ecosystem function (ESF) to indicate some capacity or capability of an ecosystem to do something that is potentially useful to people. De Groot and co-authors (2010) published a similar definition for ESF which are defined as the capacity of ecosystems to provide goods and services that satisfy human needs, directly and indirectly (e.g. the amount of fish a lake can provide on a sustainable basis). With a similar but more specific meaning the term ‘landscape function’ occurs frequently in the literature. It

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refers to the capacities of landscapes to provide a service (Haines-Young et al., 2012). Here, the landscape function can be considered as a subset of an ecosystem function.

According to the work of Boyd and Banzhaf (2007) services and benefits are quite distinct. Fisher and Turner (2008) define that a benefit is something that directly impacts on the welfare of people and changes the level of well-being and has to be distinguished from ecosystem services. Van Oudenhoven and co-authors (2012) use the following definition: The benefit is the socio-cultural or economic welfare gain provided through the ecosystem service, such as health, employment and income. This is in contrast to other definitions (e.g. Daily 1997, MA 2005) where services are put on a level with benefits: Ecosystem services are the benefit, people, derive from ecosystems (Costanza 1997, MA 2005).

Objectives of the study

- To analyse various ecosystem and biodiversity
- To analyse cause of ecosystem degradation
- To analyse Habitual Functions for ecosystem
- To analyse Functions of an ecosystem

Ecological Pyramids

The energy pyramid shows how the amount of energy entering each level varies across trophic levels. In general only about 10 % of the energy entering a trophic level is transferred to the trophic level above it, so the energy pyramid always has a distinct step like pattern with less energy entering each trophic level up the food chain. The shape of the energy pyramid affects the length of food chains because eventually the amount of energy entering the highest trophic level is not large enough to support a higher trophic level.

Biological Clock

Sunlight is the only significant source of energy for most ecosystems. Green plants, some algae and bacteria carry out photosynthesis. They use the energy from sunlight to power chemical reactions that combine simple inorganic molecules to form complex, organic compounds. Elements cycle through the compartment of ecosystem. The structure of ecosystem is defined by its components. The components of an Ecosystem structure.

Habitual Functions

National ecosystems and nutrient uptake by autotrophs converts energy, carbon dioxide, water and nutrients into a wide variety of carbohydrate, structures which are then used by secondary producers to create an even larger variety of living biomass. This broad diversity in carbohydrate structures provides many ecosystem goods for human consumptions, ranging from food and raw materials to energy resources and genetic material.

Cause of ecosystem degradation

Deforestation : One of the main causes that contribute to the degradation of ecosystems is the deforestation due to the advance of the agricultures, frontier and inappropriate forest exploitation. More lands are deforested for commercial agricultures and livestock rearing and due to overexploitation of forest for wood and energy.

Climate Change

The rise in greenhouse gas emissions over the past 150 years or so is strongly correlated with changing social dynamics- industrialization and economic development leading to greater energy use and more carbon intensive emission. The climate change that is occurring due to increases in atmospheric, greenhouse gas concentration is anticipated to have numerous negative impacts on biodiversity worldwide.

Decomposer

Decomposers are organism that break down dead or decaying organism, and in doing so carry out the natural process of decomposition. Like herbivores predators, decomposed are heterotrophic, meaning that they use organic substrates to get their energy , carbon and nutrients for growth and development. Decomposes use deceased or dead organism and non living organic compounds as their food sources. They are the organisms that feed on dead and decayed organic matter. These are also called as herbivorous organisms. They digest complex organic matter with the help of digestive

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enzymes and convert them to simple compounds which can be re used by producers. So these decomposers help to complete a food cycle.

Conclusion

Ecosystem illustrate how an ecosystem works or operate under natural conditions from the operations point of view the biotic and abiotic components of an ecosystem are so interwoven into the fabric of nature that their separation from each other becomes practically difficult.

IV. SUGGESTIONS

The soil an abiotic factor of an environment affects ecological primary succession greatly. Different species of plants require different soil conditions. Trees tend to be the largest driving organism in this portion of ecological succession. The pH levels of the soil is often affected most by the inhabiting trees and determines what type of plants can thrive there. The type of soil (loamy sand, sandy, top soil with humus etc). also plays a large role in what species can inhabit an area.

Invasion or Migration – The process of invasion or migration helps the arrival of sees, spores or other re productive propagates for establishment of species. Invasive species are non native organism which can spread widely in a community. These are usually threatening the normal ecosystem and causative agents for community disturbance However, in succession process, they help to alter the soil texture and function. These selected species are often the first colonisers due to their high reproductive rates and better dispersal mechanism.

Aggregation : Aggregation is the increase in population of the species which has become established in the area. The shrubs replace the small herbs in most successions. This also proves as a source of food for future inhabitants.

Reaction – The environmental conditions get modified by the action of species occupying the habit. These changes subsequently trigger the displacement and replacement of one species by another. The existing community will be unable to support itself due to the harsh conditions. The major underlying mechanism is autogenic succession in which the plants themselves alter the environmental conditions.

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