Enhancing Rural Areas While Safeguarding Ecosystems through Sustainable Practice of Ecosystem Based Approaches (EBA) with Emphasis on Ecotourism

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Abstract

Sustaining the healthy function and structure of natural ecosystems is a challenge, mainly due to the negative impacts of anthropogenic activities and climate change. The complexity of safeguarding ecosystems has led to the need of new management tools that prioritize their long-term sustainability. Such a tool is the ecosystem based approaches (EBA), a newly developed management practice that has showed great promise because it benefits the long-term healthy structure and function of ecosystems. EBA has been implemented successfully in the USA, but only recently has been introduced in areas such as the Mediterranean region, while in other areas like Africa its application is not known, yet. Further, Ecotourism is a newly fast growing trend in the tourism sector that can provide increased economic growth. The scope of this paper is to introduce both EBA and ecotourism in order to benefit rural areas and protect the adjacent ecosystems. Specifically, it is a great challenge to develop an EBA management plan tailored to safeguard ecosystems, particularly highly venerable areas such as the protected (e.g. Natura 2000), while emphasizing sustainable ecotourism activities to enhance rural areas. Further, this paper provides insights on baseline information necessary to be used as guidelines when developing and implementing such a sustainable plan that suits each ecosystem. This will allow the understanding of EBA in developing sustainable ecotourism activities that will enhance job opportunities for rural areas.

Keywords: Biodiversity, conservation, employment, innovative tools, sustainable ecosystems

1. Introduction

The negative impacts of anthropogenic activities (e.g. agriculture, dams) and climate change (e.g. drought conditions) will enhance negative impacts such as reduced biodiversity levels and land degradation (Thirgood, 1981). Natural ecosystems like the Mediterranean and rainforests are of high ecological value. However, conserving and sustaining their healthy structure and function poses many difficulties. The level of vulnerability of those ecosystems increases, particularly when dealing protected areas. Consequently, safeguarding them has led to the application of more concrete holistic ecological management methods.

The ecosystem based approaches (EBA) is a very promising newly developed holistic approach in managing ecosystems by sustaining their healthy function and structure in the long-term. Specifically, McLeod et al. (2005) define it as an environmental management approach that recognizes the full array of interactions within an ecosystem, including humans, rather than considering single issues, species or ecosystem services in isolation. While EBA has been implemented in countries such as the USA, only recently it has been introduced in the Mediterranean region.

Further, ecotourism is a new fast growing trend in the tourism industry, where people visit natural ecosystems under low impact, non-consumptive and locally oriented activities. It provides great opportunities of increased income especially for rural and undeveloped areas. Ecotourism is growing because of the increased number of protected areas worldwide that according to Lockwood et al., (2006) is the greatest land-use transformation of the 20th century. It has been indicated that when practicing ecotourism many benefits can be gained such as: a) getting acquainted with the cultural heritage of the area, b) being environmentally educated, c) enhancing of the protection and conservation of specific species, as well as d) getting economic benefits (Iakovoglou et al., 2015). However, the unmanaged practice of ecotourism, particularly in protected areas, poses many irreversible risks for those natural ecosystems that are associated with problems such invasiveness and reduction of biodiversity (West, 2006).

2. Baseline Information

When following specific guidelines in order to develop a

holistic EBA management plan that are tailored to safeguard ecosystems, the maximum benefits could be achieved under minimum negative impacts to the ecosystems and the society through proper practice of ecotourism. Baseline information is substantial in order to create an EBA with emphasis on ecotourism. This type of information shapes the tools that will be used to sustainably manage those areas while getting the maximum positive impact through the practice of ecotourism. Following, a brief description on the type of information will be analyzed that include: a) knowledge of the area, b) knowledge of the flora and fauna of the ecosystem, c) knowledge of past activities, d) communication with locals or people that utilize the area and e) knowledge of the culture and the market of the area.

2.1. Knowledge of the area

When practicing EBA, knowledge of the current condition regarding the abiotic factors of the specific ecosystems is substantial. Information regarding the geomorphology of the area, such as geological and vegetation maps, provide important help in understanding the potential response of an ecosystem in relation to the anthropogenic interference. This information could be obtained through the corporation of public and private agencies (such as Forest District Office). Further, data related to climatic past conditions are of particular value, since temperature and precipitation (if available) help estimate extreme weather events, such as drought or flood conditions that directly affect the existence of specific animal and plant species. Consequently, this type of information is necessary when managing those areas in order to sustain and conserve the biodiversity levels of the ecosystem. For example, in Mediterranean ecosystems intense drought events substantially affect the existence of plant species. A characteristic example is the southern distribution range of *Pinus sylvestris* where the increased temperatures and drought events induced growth and regeneration problems (Martinez-Vilalta et al., 2008); a phenomenon that needs to be considered when managing those areas through EBA while enhancing ecotourism.

2.2. Knowledge of the flora and fauna

Experts should also know the species that are present in the area, as well the species that face or might face extinction problems. Specifically, professionals should become acquainted with the composition, structure and function of the flora and fauna of the area as well as their distribution ranges. In terms of composition, experts should know what species are present at the area, what their distribution range is and how that is affected by variables, such as the geomorphology and management practices of the area. In terms of structure, it is important to know information, such as the type of vegetative layers that provides information and guidance on potential future practices, such as timing of understory cleaning that reduces the fire risk or enhance the level of regeneration success.

2.3. Knowledge of past activities of the area

Knowing past activities of an area is substantial information that helps address the ability of an ecosystem to sustain its structure based on past events such as disturbances and management practices. Those management practices might involve logging activities, grazing, farming as well as actions that usually take place prior (such as cleaning the understory vegetative debris) or after (such as regenerating a site) disturbance events. Fires are one of the main types of disturbances that occur naturally in the Mediterranean ecosystems and are consider a cause of biodiversity loses. However, particularly at high visitation ecosystems, many fires are human-induced either by accident or on purpose. This type of information should never be neglected when managing through EBA with emphasis on Ecotourism since this is one of the driving forces that affect the sustainability of those ecosystems.

Information related to past activities at a specific ecosystem can be obtained through the help of public and private local agencies that have been managing (e.g. Forest service) or utilizing the area (e.g. hunting associations). This information will help address the impact of past management practices on the current status of the study area. For example, by knowing when and in what extent logging activities have been taken place in an ecosystem in relation to the ability of an ecosystem to naturally regenerate enables to arrange future actions such as transplanting activities to help the succession of a species. Consequently, when practicing EBA, managers should get informed on past actions or practices of the area as well as other human activities, such as grazing since those activities affect directly or indirectly affect the efforts in maintaining a sustainable healthy ecosystem.

2.4. Communication with locals or people that utilize the area

Communicating or questioning people that leave or utilize the nearby communities might provide substantial information regarding past activities as well as the history of the area. Specifically, those people can be hunters, fishermen, farmers, shepherds, loggers, even seasonal visitors, know very well the area. For example, hunters in order to increase their prey know and observe animal movements and behavior that change depending on the animal species (Lehikoinen et al., 2004). Problems related to pests or other outbreaks that might have occurred in the past in relation to the extent and spread of the problem are also important information.

2.5. Knowledge of the culture and the market of the area

Knowing the amenities that the area provides such as hotels, restaurants and camping areas, in relation to the market of the local products, such agricultural products and accessories, help enhance the income of the area. In addition, finding ways to advertise and promote those products in relation to the ecosystem services could further increase the income of those rural areas. All those activities also help get acquainted

with the cultural heritage and behavior of the locals. These are significant values that also improve our communication skills while getting educated on ecosystem values that are associated with the culture of other societies.

In addition to baseline information when managing those ecosystems while practicing Ecotourism we should have management actions that relate to: a) Preventing, b) Planning, c) Monitoring, d) Evaluating or Assessing, e) Restoring and f) Educating for sustainable long-term management. Those actions in accordance to the use of new user-friendly and also easily adopted technological tools such as drones, satellite images and webGIS will allow the more effective and efficient application of EBA while practicing Ecotourism that will benefit both the ecosystems as well as the society through the enhancement of rural areas.

3. Conclusion

Ecosystem based approaches (EBA) is a very promising newly applied management method that has only recently been introduced in Mediterranean countries. Engaging the authorities into practicing EBA, a state-of-the-art holistic ecosystem management system, could help achieve long-term sustainable healthy function and structure of ecosystems under the challenges of anthropogenic activities and climate change.

4. Further Research

Furthermore, ecotourism is a new type of tourism that helps sustain ecosystems while also providing an innovative way to enhance economic growth in rural and undeveloped regions. Consequently, the incorporation of EBA and ecotourism will enhance ecosystem sustainability and increase job opportunities for rural and undeveloped areas. Further, baseline information is substantial to be used as guidelines in order to achieve the maximum benefit when practicing EBA and ecotourism while protecting ecosystem services with the maximum economic benefit.

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