Drivers and Thresholds for Protected Area Tourism in Costa Rica: Exploring a Socio-ecological Systems Approach

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ABSTRACT

This study proposes a novel approach to examine the applicability of resilience thinking and its framework to an emergent area of study there is currently little research available. The ability to examine the drivers and slow changing variables affecting the resilience of tourism in Costa Rica’s Guayabo National Monument allows for the opportunity to recognize and work with changes in a complex system while taking advantage of emergent systems thinking from a socio-ecological perspective. Focus on the importance of drivers and thresholds affecting a protected area are further reviewed in order to analyze the resilience of protected area tourism from a socio-ecological systems approach.

Keywords: resilience thinking, protected area, tourism, socio-ecological systems, Costa Rica, perceptions.

INTRODUCTION

Protected area tourism is a growing trend worldwide that accounts for a significant portion of the tourism industry in many countries such as Australia, Costa Rica, Kenya, and New Zealand (IUCN, 2009). Protected area tourism is different from traditional mass tourism in that this venture offers guests the opportunity to interact with the area’s biophysical and cultural heritage while providing conservation to the area’s biodiversity and cultural values (Eagles, McCool, & Haynes, 2002). The International Union for Conservation of Nature (IUCN) defines protected areas as geographical spaces “especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, managed through legal or other effective means” (1994, p. 7). Strickland-Munro, Allison, and Moore (2010) suggest that relationships between tourism, protected areas, and their respective impacts on local communities play a significant role within the resilience and adaptability of this social-ecological system due to their linked complexity. Local communities are integral components of this complex system because they include all residents living within or in close proximity to the protected area. In addition, direct economic dependency on tourism affects local communities and influences the attitudes of residents and their perceptions of tourism as an effective method of conservation.
Tourism in protected areas

Costa Rica has experienced an increasing amount of international coverage in regards to their sustainable tourism practices. The country prides itself for being one of the most biodiverse regions of the world; therefore, the country has set aside 25% of the national territory for the development and management of national parks and protected area reserves (Costa Rica Tourism, 2010). Tourism ventures in Costa Rica include protected area tourism and these practices generate millions of dollars in profits for the use of natural resource protection and the ability to provide around 50,000 jobs (Rainforest Alliance, 2010). Nevertheless, the ability to measure the impacts of protected area tourism practices on local communities is currently unavailable due to lack of research or lack of effective methods to determine if there are any impacts present. The ability to manage protected area tourism in such a large scale requires a novel assessment tool to conceptualize, predict, and manage visitor impact on the environment (Strickland-Munro et al., 2010). Protected area tourism is a unique social-ecological system since it often requires the dual mandate to deliver both biodiversity conservation and tourism (Eagles, McCool, & Haynes, 2002). Including sustainable practices to tourism ventures allows the ability to prevent or minimize the compromise of ecological and social values of a destination while focusing on the optimization of environmental and socioeconomic benefits (Libosada Jr., 2009).

Farrell and Twining-Ward (2004) argue there is a need to integrate all systems within tourism to effectively plan future frameworks due to the current lack and inadequacy of methods to research unexpected processes and events within tourism. Therefore, Strickland-Munro et al. (2010) suggests the implementation of resilience thinking principles to investigate how disturbances affect the susceptibility of protected areas and tourism. Walker and Salt (2006) suggest resilience thinking provides a way to understand changes in the socio-economic environment that include both human and natural parts because it includes multiple, interacting components; cause and effect relationships; system dynamism; “butterfly effects;” and vulnerability to multiple shocks. Folke (2006) also proposes resilience thinking can be used to measure the capacity of a system to absorb disturbances and reorganize itself.

When working with protected areas, tourism practices are frequently misunderstood and often compromise ecological functions, create social problems, or impede in the cultural context of the destination. In order to determine the drivers and slow changing variables that could affect a system, it is important to begin with a historical and contemporary profile of the protected area and the surrounding local community to determine the opportunities, constraints, and developments of tourism (Walker, Carpenter, Andries, Abel, Cumming, Janssen, Lebel, Norberg, Peterson, & Pritchard, 2002). The conceptualization of resilience thinking and its applicability to define the resilience and adaptability of a social-ecological system requires a human-in-the-environment perspective to determine the local community’s perceptions and attitudes; slow changing variables and disturbances; and key power holders, policies, regulations, and legislations affecting the system.

The resilience thinking framework

The implementation of this framework allows for individuals and key policy holders to assess the area in which the resilience measures will be implemented as well as the local
community’s ease to adapt to resilience initiatives. A thorough investigation of possible external and internal drivers and slow changing variables affecting the social-ecological system is required in order to examine the impacts of drivers and disturbances on the protected area tourism and local system functions. Resilience thinking offers a framework for viewing social-ecological systems as one interconnected system and offers the tools needed to identify external and internal drivers and slow changing variables (Walker & Salt, 2006). Resilience thinking attempts to define how the system can absorb a spectrum of shocks or disturbances while concerning itself with the system’s capacity for renewal, re-organization, and development (Folke, 2006; Walker, Holling, Carpenter, & Kinzig, 2004). Complex adaptive systems interact in a way that causes the system to adjust (i.e., “adapt”) in response to changing conditions. External or internal drivers and disturbances that affect social-ecological systems such as exogenous controls (e.g., climate, regional biota, regional governance systems, and regional economy) and slow variables (i.e., variables that strongly affect social-ecological systems but remain relatively constant over years or decades) are often unpredictable.

The proposed framework transcends both the social and biophysical domains as it aims to provide a way of thinking in which systems can achieve sustainability by focusing on the system as a whole through different perspectives and scales of time (Walker & Salt, 2006). This framework provides a method for determining the amount of change the system can undergo while (1) retaining the same controls on function and structure; (2) the degree to which the system is capable of self-organization; (3) and the ability to build and increase the capacity for learning and adaptation (The Resilience Alliance, 2010a; Walker & Salt, 2006). The objective of resilience thinking is to understand how nature and humans (as part of a social-ecological system) operate together. Human and biophysical domains are interdependent and when the objective of this system includes long-term sustainability, linked social-ecological systems (SESs) operate together and behave as complex adaptive systems (Walker et al., 2002).

Changes in social-ecological systems reflect a progression through linked adaptive cycles (cycles of system disruption and renewal) on different scales of time and space. These adaptive cycles consist of four phases: rapid growth/exploitation (r), conservation (K), release (omega), and re-organization/renewal (alpha) (The Resilience Alliance, 2010b; Walker & Salt, 2006). Most of the time, social-ecological systems are slowly moving through one of the four phases in the adaptive cycle. Linking these changes and understanding the adaptive cycle of a system gives insight as to how and why a system is vulnerable to changes. In addition, resilience thinking allows the capacity to develop management interventions that will allow the system to bounce-back following disturbances and better manage the effects of external and internal drivers and slow changing variables on the system (Folke, 2006; Walker & Salt, 2006). Understanding system dynamics allows for different institutions, organizations, and social networks to better manage both the human and biophysical domains of the system and to focus on drivers and slow changing variables that may create vulnerability to the system in the future.

**METHODOLOGY**

The population sample consists of approximately 400 residents and local business owners within 50 kilometers of the protected area of the Guayabo National Monument. First, we will identify residents and local business owners that have lived or have conducted business in and
The historical and contemporary collection of data to determine the profile of the social-ecological system will begin 10 months prior to the survey collection of residents and local business owners surrounding the Guayabo National Monument in Costa Rica. This profile is important in order to define what external factors and slow changing variables currently affect the social-ecological system. Survey data will be collected during June and August of 2011.

**DATA ANALYSIS**

Historical and contemporary analysis of the social-ecological system will be explored through an environmental scanning approach. Descriptive statistics including frequencies, percentages, and measures of dispersion will be used to describe the sample findings. Correlations will determine if the protected area tourism affects the perceptions and attitudes of the local community positively or negatively.

A compilation of findings from the historical and contemporary analysis of the social-ecological system, the evaluation of the statistical findings from the questionnaires, and the analysis of published natural resource data from the Costa Rican government will help determine the amount of change the social-ecological system can undergo before it moves into a new regime. This analysis will aid to prevent a catastrophic shift of the social-ecological system while (1) retaining the same controls on function and structure; (2) the degree to which the system is capable of self-organization; (3) and the ability to build and increase the capacity for learning and adaptation (The Resilience Alliance, 2010a; Walker & Salt, 2006).

**CONCLUSION**

The applicability of resilience thinking and its framework to examine the drivers affecting the resilience of tourism in Costa Rica's Guayabo National Monument can help investigate how uncertainty affects the complexity of the “whole system.” Resilience thinking offers humans the opportunity to find better techniques in which to manage the susceptibility of the protected area, tourism, and the ability for the local community to bounce back following disturbances. Strickland-Munro et al. (2010) suggest resilience thinking and its assessment process is a useful tool to investigate the impacts of protected area tourism and its influence on local communities. Therefore, the purpose of this study is to examine the applicability of resilience thinking and its framework to examine the drivers and slow changing variables affecting the resilience of tourism in Costa Rica's Guayabo National Monument. This framework allows for further investigation as to how uncertainty affects the complexity of this social-ecological system as well as defines possible system thresholds.

**REFERENCES**


