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Evaluating Effectiveness in Parks: Does Indigenous Co-management Make a Difference?

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Introduction to the proposed research

Given the importance of parks to global biodiversity conservation, it is prudent to ensure they achieve their objectives as effectively as possible. The endeavor to pursue protected areas only makes sense if there is a good chance of success in maintaining and protecting ecological and cultural features in perpetuity (Hockings 2003). Unfortunately, the establishment of a park does not guarantee that the environmental or cultural features within it will be protected (Hawthorn et al. 2000). Hence, the effectiveness of parks and their sustainability over the long term is in question. Many critics have claimed that parks cannot continue to protect the biological resources within their borders and there is a widespread sense that these areas are simply not working (Bruner et al. 2001). Although parks may be operating under many handicaps, including serious threats to biological diversity and poor relations with local communities, "instead of abandoning the hundreds of parks that are currently foundering, ways of strengthening them must be found" (Terborgh and van Schaik 2002:5). Consequently, an emphasis on determining the effectiveness of parks management has been gaining purchase (Dudley et al. 1999).

At the same time, many indigenous communities worldwide continue to be negatively affected by the establishment of parks, and this has led to an increased emphasis on the involvement of indigenous people by park agencies and international organizations over the past decade. Several recommendations arising from the World Conservation Union's (IUCN's) Fifth World Parks Congress (held in 2003) call for a strengthened role for local and indigenous people in park collaborative management or co-management (World Commission on Protected Areas 2003). Co-management defines "an arrangement where responsibility for resource management is shared between the government and user groups (Sen and Nielsen 1996:406). In spite of this, there is still significant controversy over the appropriate role for indigenous people in park management. Some argue that local human needs are co-opting the integrity of parks (Terborgh 2004), while others see human issues as inalienable from discussions on parks (Brosius 2004). Co-management continues to be pursued despite evidence that these types of initiatives are either functional or dysfunctional, and despite a dearth of data on best management practices (Morgan et al. 1997; Budke 1999; Nadasdy 2003). Hence, "empirical data are needed to understand whether community-based conservation is effective and under what conditions, so that appropriate policies for protected areas management and biodiversity conservation can be implemented" (Mugisha and Jacobson 2004:233).

Given this, the purpose of the proposed research is to determine how the level of indigenous co-management of a park correlates with its ecological and sociocultural effectiveness.

Following Ervin (2003) but including an explicit focus on the need to mitigate impacts on local people, a park will be considered *effective* if it maintains biodiversity, abates threats, achieves park management objectives, and contributes to local livelihoods. Using several case study parks in three or four countries, this analysis will be accomplished by evaluating how effectively each park achieves a subset of its ecological and sociocultural objectives. The effectiveness of at least two parks will be compared for each case study country: one park heavily co-managed by government and local indigenous groups, and one characterized by minimal co-management with indigenous groups. The remainder of this paper briefly reviews the salient literature on evaluation and co-management, and presents a rationale for evaluating the ecological and sociocultural effectiveness of parks under varying levels of indigenous co-management.

Evaluation and indigenous co-management

Evaluation in parks and protected areas. "Evaluation is the process of establishing value judgments based on evidence about a program or product" (Smith and Glass 1987:30). It implies the systematic gathering and analysis of evidence about a program, project, or policy in order to determine the worth of that which is in question. Some of the most important reasons to conduct an evaluation are to provide accountability, focus and guide program planning, and determine whether or not a program is accomplishing its goals and objectives. There are two general levels of scaling common to evaluations: nominal and ordinal. Nominal scaling relies on distinct, mutually exclusive, and exhaustive data (Bailey 1994). There is no rank ordering in a nominal scale; no "greater than" or "less than" is implied (Bingham and Felbinger 2002). This means that each case must fit into a category, but only into one category, such as gender, marital status, and age.

Ordinal scales are used more commonly than nominal scales given the greater depth of information they produce. Ordinal scales also consist of mutually exclusive and exhaustive categories; however, unlike nominal scales where the data are essentially "equal," the data in an ordinal scale are ranked in a way that suggests "better" or "worse," or "more" or "less" of a variable (Bailey 1994; Bingham and Felbinger 2002). One of the most common types of ordinal scales is the Likert Scale developed by Likert in 1932, which increases the variation in the possible scores by coding from "strongly agree" to "strongly disagree" (Bailey 1994), instead of a simple dichotomous response option of "agree/disagree."

Although the evaluation of parks is in its infancy (Hockings 1998), it is critical to the success of these areas as it encourages adaptive and responsive management, reviews results of actions taken, assesses whether these actions produced desired results, improves guidance, and increases accountability (Dudley et al. 1999; Hawthorn et al. 2002). The scale proposed in this interdisciplinary evaluation of the ecological and sociocultural effectiveness is given in Table 1. This scale was developed by De Faria in 1993 and it utilizes a 0–4 ordinal scoring system in which a set of conditions is constructed for each indicator with the optimal condition or outcome having the highest value (Arias and Valery 1999). This five-point scale has been adapted from an International Organization for Standardization (ISO) standard percentage scale (Cifuentes et al. 2000).

Table 1. WWF/CATIE rating scale for determining protected area's management effectiveness. Source: Arias and Valery 1999.

Rating	% of Optimum	Description
0	<35	Unsatisfactory
1	36–50	Minimally satisfactory
2	51–75	Moderately Satisfactory
3	76–90	Satisfactory
4	91–100	Very Satisfactory

Indigenous people and park co-management. Many indigenous communities worldwide continue to be negatively affected by the establishment of parks. The explicit involvement of indigenous people and the incorporation of their knowledge has often not been a priority in parks management, and hence national parks have had severe, adverse impacts on local traditions and beliefs, including "obsolescence of cultural values, social disintegration, unsustainable harvesting, and severe conflicts over resource use" (Nepal and Weber 1995:12). These impacts and the ensuing conflicts have led to calls for increased local participation in parks, and co-management was first defined in regard to protected areas by Brechin et al. (1991:25) as "the substantial sharing of protected-area management responsibilities and authority among government officials and local people."

In all but the most strictly community-controlled protected areas, the role of indigenous people in decision-making has not been equitable, and the relationship of park agencies with local communities has generally been paternalistic and unidirectional (Stankey 1989). A critique emerging from the conservation field is that participation is still seen as a means to achieve externally desirable conservation goals. This means that, although the need for participation is recognized, there may be clear limits to the form and degree of participation that conservation managers tolerate in protected area management. Under the rubric of "local participation," an external agency decides what should be done, and the local community participates in its implementation; thus for genuine participation to occur, there needs to be some form of decentralization which results in the delegation of authority and power over decision-making being given to the local community (Little 1994). For more participatory co-management to occur, a shift is required from the less-meaningful versions of participation to increased levels of local participation and equity in decision-making. Table 2 depicts a hierarchy of co-management in which the lower levels of the hierarchy are characterized by varying degrees of tokenism for the involvement of citizens, whereas the higher levels demonstrate a significant redistribution of power to allow real accountability and responsibility on behalf of the citizens.

The importance of indigenous people, their role in decision-making, and the applicability of their traditional knowledge has been recognized as crucial to the sustainability of protected areas (Mitchell and Buggey 2000). In Canada, there has been an increased awareness that local indigenous people should play an equal role in the design and implementation of management plans for protected areas to overcome these conflicts (Morgan et al. 1997). A variety of co-management arrangements have been pursued around the world. South Africa's Kruger National Park, Australia's Kakadu and Uluru-Kata Tjuta National Parks, Colombia's Alto Fragua-Indiwasi National Park, Bolivia's Kaa-ya Iya National Park, and Canada's Kluane and Gwaii Haanas National Parks are all examples of co-managed park models.

5	**Community Control**	Delegated decision-making to users; users hold clear majority of seats on committees with delegated power; user groups inform government of decisions.
4	**Advisory**	Planning and decision-making responsibilities are shared through joint committees; joint action on common objectives; users advise government of decisions to be taken and government endorses these decisions.
3	**Co-operation**	Government and users cooperate together in decision-making; local concerns enter management plans and local knowledge is used.
2	**Consultation**	Community input is heard but not necessarily heeded; mechanisms exist for government to consult with users but all decisions made by government; generally a one-way flow of information.
1	**Informing**	Community is informed about decisions already made; minimal exchange of information between government and users; essentially non-participative.

Table 2. A hierarchy of co-management. Adapted from Arnstein 1969, Berkes 1994, Sen and Nielsen 1996.

Research rationale

The research proposed in this paper strives to determine how the level of indigenous co-management of a park correlates with its ecological and sociocultural effectiveness by comparing parks under varying levels of indigenous co-management. There are three main reasons why this research is timely and relevant to national parks management. First, regardless of in which country or region case study parks are located, management plan objectives generally share the following meta-objectives: protection of native flora and fauna; monitoring and maintenance of native species at risk; restoration and maintenance of historical fire cycles; eradication and monitoring of identified exotic flora and fauna. The evaluation scale will be used to gauge each case study park's progress on at least one objective in each of the above categories, with a goal of evaluating approximately fifteen objectives in total for each case study park. "Evaluating management plans in light of the objectives they set forth is a critical component in determining the effectiveness for a protected area" (Tompa and Lajeunesse 2002:459). This format provides a more direct measure of achievement than those that only target inputs or processes of management, as it measures the real impact of management action (Dudley et al. 1999; Jones 2000; Hockings 1998). Once the effectiveness with which objectives are achieved is determined, it is then possible to determine what factors contribute to, or detract from, effectiveness. These factors could include well-trained enforcement personnel, reliable and consistent funding and budgets, or the initial location and design of the park.

Second, Saterson et al. (2004:598) note that few evaluations to date have been "comprehensive enough to assess effects on biological resources, on ecosystem function, and on social welfare and equity." Likewise, in his review of twenty-seven assessment methodologies, Hockings (2003) found that, of the methodologies focused on outcomes, none

employed both monitoring (i.e., ecological) and perception (i.e., qualitative) data. The evaluation scale in this research (Table 1) has been deemed appropriate for an interdisciplinary evaluation of the ecological and sociocultural effectiveness of parks as it combines both a percentage scale and a descriptor scale, the former being appropriate for ecological monitoring data and the latter for perception/interview data.

Finally, the co-management of parks around the world is becoming increasingly common and there is every reason to believe that the push for indigenous co-management will continue to increase as protected areas cannot survive in isolation from the landscape beyond their boundaries. There will continue to be a need to involve neighbors of parks and protected areas in broader landscape conservation programs, as co-management allows park managers to manage lands beyond artificial boundaries. As such, with an explicit focus on the contribution that co-management initiatives can make to park's effectiveness, this evaluation will help to determine if such arrangements are functional. By identifying successes and failures, the subsequent adaptation of management regimes according to the lessons learned can further strengthen park co-management endeavors.

Conclusion

Many protected areas worldwide have been ineffective at conserving biodiversity, while others have been unsuccessful at mitigating the impacts of parks on local indigenous communities. The indigenous co-management of parks and protected areas is expected to increase, hence productive and effective working relationships between governments, parks personnel, and local people are needed to ensure threats to parks are minimized and local livelihood needs are being met.

Evaluating the outcomes of park management plans is the only way to make an explicit link between actions and resulting outcomes. Once it is determined whether or not outcomes are being achieved, it will be possible to work backwards to determine what are the factors contributing to, or detracting from, effectiveness. By following the evaluation scale in this paper, it will also be possible to determine what role collaborative management with indigenous groups plays in the ecological effectiveness of parks.

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