



## Review

# The sacred commons: Conflicts and solutions of resource management in sacred natural sites

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## ABSTRACT

Sacred natural sites are considered an additional pillar for biodiversity conservation, next to the protected areas network. However, sacred landscapes are not primarily conservation areas, but exist for cultural and social reasons. To evaluate their strengths and weaknesses as community-based conservation areas, a thorough understanding of the underlying values, institutional arrangements, and outcomes is required. Here, I use institutional economics for a meta-analysis of publications on sacred natural sites to identify potential conflicts in their maintenance, and to analyze institutional arrangements to solve these conflicts. I show that most sacred natural sites resemble common-pool resources and that many design principles that are linked to common-pool resources are also found in traditional institutions managing sacred places. Design principles are no blue-print solution but they may guide future research to identify locally robust institutional arrangements that are linked to the ecological integrity of sacred natural sites.

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## 1. Introduction

In a wide variety of societies, landscapes are deemed sacred and are partly or fully protected through social norms that are based on

spiritual values. Sacred natural sites are defined as areas of land or water having special spiritual significance to peoples and communities (Wild and McLeod, 2008). Sacred landscapes exist in countries all over the world, and are found in mainstream faiths and numerous local belief systems. They may honor a deity, provide sanctuary for spirits, be a living expression of ancestors, or protect

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a sanctified historic place (Dudley et al., 2009). Sacred natural sites occur at a variety of scales and can be as small as a rock formation or forest patch, or can extend to an entire mountain range (reviewed in Bhagwat and Rutte, 2006). The total number of sacred natural sites is unknown – a global estimate in excess of a quarter of a million is realistic (e.g. 50,000 sacred groves have been reported from India so far (Malhotra et al., 2007), estimates for Ghana (Ntiemoa-Baidu, 1995) account to at least 2000 sacred groves). By protecting sacred natural sites, local people derive benefits in addition to the spiritual rewards of serving their faith. Sacred natural sites provide a range of ecosystem-services (MEA, 2005); they may serve important health needs of people by providing medicinal plants, protect soil and water and serve as sites for important socio-cultural events such as religious festivals, lifecycle rituals, and secret society meetings (Chandrakanth and Romm, 1991; Dorm-Adzobu et al., 1991; Dudley et al., 2010; Fomin, 2008).

In recent years, conservation specialists have become increasingly aware of the existence of these sites and the capacity of traditional societies to conserve biodiversity (Ormsby and Bhagwat, 2010; Verschuuren et al., 2010; Wild and McLeod, 2008). Since Gadgil and Vartak (1976) published the first study on the ecology of sacred groves in the Western Ghats of India, a substantial body of literature has accumulated that reports on biodiversity in sacred natural sites. Sacred natural sites may play an important role for the conservation of biodiversity because they cover a wide variety of habitats and landscapes, and are often located in biodiversity rich regions (reviewed in Bhagwat and Rutte, 2006; Dudley et al., 2010; Ormsby and Bhagwat, 2010). Furthermore, sacred natural sites are maintained through traditional methods by communities and are deeply rooted in local culture. The exclusion of local people is believed to be one of the reasons why governmental protected areas are often ineffective, despite the large sums of money and manpower invested in them (Brown, 2003). Sacred natural sites are thus considered an additional pillar of biodiversity conservation (Bhagwat and Rutte, 2006; Dudley et al., 2010; Lebbie and Guries, 2008) besides the protected areas network, due to their ecological values and the assumed stability of the institutions managing them.

However, sacred natural sites are neither traditional conservation areas nor are the traditional institutions managing these sites unchanging. Sacred natural sites are areas that humans are using and shaping and are not necessarily representing pristine nature in a fixed state (Juhé-Beaulaton and Roussel, 2003; Sheridan and Nyamweru, 2008). Sacred natural sites are primarily protected by communities for their spiritual or cultural value, and may be additionally valued for social, economic, and ecological reasons, resulting in different forms and intensity of social conflict and human impact on natural resources. Biodiversity conservation is thus one of several concomitant values of sacred natural site protection and cannot be understood in isolation from the full set of values and the set of governing and managing tools that shape human conduct towards these sites. The traditional institutional arrangements of communities that manage these areas are not fixed entities, but change due to socioeconomic and cultural influences (Sheridan and Nyamweru, 2008). Many sacred natural sites have existed for a long period of time (several hundreds or even thousands of years), while others are facing serious threats and many have disappeared (Bhagwat and Rutte, 2006; Chandrakanth et al., 2004).

To evaluate the strengths and weaknesses of sacred natural sites as community-based conservation sites, a thorough understanding of the underlying values, institutional arrangements, and outcomes is required. Such insight will enable us to answer questions like: What are the main functions of sacred natural sites and how can these functions co-exist (or when do conflicts arise)? What are the conditions that lead to successful management of

sacred natural sites? The answers will help to develop policies and initiatives aimed at conserving biodiversity while respecting cultural and spiritual values of sacred natural sites.

In this study I use institutional economic theory and insights derived from new institutionalism (North, 1990; Ostrom, 1990) to identify potential conflicts related to sacred natural sites and to analyze institutional arrangements of communities managing sacred natural sites. First, I classify sacred natural sites based on the entities for which they are valued. In a literature review, I show that many (if not most) existent sacred natural sites resemble common-pool resources. Second, I test whether design principles (DP) that are linked to long-enduring common-pool resources are also found in the governing and management regimes of sacred natural sites. I conclude the paper with a description of conflicts related to sacred natural sites that may lead to their ecological degradation, and discuss possible management solutions to address these conflicts. I also make recommendations for future research on sacred natural sites. The paper seeks to foster interdisciplinary research that is required to fully understand a component of traditional natural resource management that is common, widespread, and that serves both people and nature.

## 2. Literature

In August 2010, I searched for peer-reviewed papers and conference proceedings on the interdisciplinary ISI Web of Knowledge database (<http://www.wok/mimac.ac.uk>, search keywords and combinations: sacred and natural and site, spiritual and value and conservation, sacred and site and management, sacred and conservation). From 119 captured articles I excluded those from the review that report only ecological data or on historic sites. I screened case studies published by the International Union for the Conservation of Nature (IUCN) and the United Nations Educational, Scientific and Cultural Organization (UNHCR) that are available on the internet. Additionally, I used the snowball approach by screening citations in these publications which captured one publication. I found 67 publications from which I extracted information on the underlying values in order to classify sacred natural sites using institutional economics, and on different institutional arrangements in order to test design principles that have been linked to robust common-pool resource management.

## 3. Classifying sacred natural sites

In economics, goods are categorized based on two properties: the difficulty of excluding potential users from their consumption and on whether or not their consumption is rivalrous (i.e., whether one individual's consumption of the good leads to subtractions from any other individual's consumption of that good) (Samuelson, 1954). Four types of goods are distinguished based on these two properties. (1) Private goods for which one person's consumption subtracts from the availability of consumable benefits to others, but exclusion is relatively easy; (2) common-pool resources for which rivalry also occurs, but exclusion is difficult; (3) club goods which are non-rivalrous and exclusion is easy; and (4) public goods for which consumption is non-rivalrous, but exclusion is not possible. This distinction is helpful for identifying the structure of possible conflicts that require different regulatory solutions. Private goods and club goods are relatively easy to manage because the resource is non-rivalrous (club goods) and/or potential resource users can be easily excluded (club goods and private goods). Common-pool resources face problems of overuse, because they are both difficult to exclude and characterized by high rivalry. Thus, a common-pool resource may be subject to the tragedy of the commons (Hardin, 1968) and requires more complex

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