

## Ethnobotanical Importance of Orans - As a Means Of Conserving Biodiversity

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Abstract

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Special sites or areas that have one or more attributes which distinguish them as somehow extraordinary, usually in a religious or spiritual sense, are called sacred places. They tend to evoke a feeling of some awesome, mysterious, and transcendent power that merits special reverence and treatment. Sacred groves are stands of trees or patches of forest that local communities conserve primarily because of their religious importance. These groves can also serve economic, medicinal, social, and cultural functions. Many sacred places in nature are associated with indigenous cultures. 'Oran', a sacred grove is a piece of land that is held by the Bishnoi community in honour and respect of a local deity. Here indigenous societies commonly use a wide variety of natural resources for their survival, economy, medicines, rituals, and other purposes. Historical, cultural, and spiritual aspects of the ecology of indigenous societies are grounded in the biodiversity, ecosystems, and landforms in their habitat. Thus, indigenes are most important to consider in exploring the relationships between sacred places, biodiversity, and conservation. Sacred groves that have a conservation role, whether actual or potential and intentional or coincidental, may need to be strengthened or augmented by economic incentives for local communities; legal, government, and/or international environmental protection schemes; and the establishment and maintenance of buffer zones. Recognition and protection of sacred places by scientific, environmental, governmental, and non-governmental organizations can simultaneously promote their conservation as well as that of the associated biodiversity and cultures.

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### 1. Introduction

Biodiversity is the variety of life at all levels from the genetic through those of the population, species, community, ecosystem, biome, and biosphere. Since the 1980s biologists have advanced biodiversity as a powerful catalyst for environmental research, education, and action, with a profound sense of gravity and urgency regarding life on Earth as increasingly endangered (Wilson, 1999). In 2005, the final report of the United Nations Millennium Ecosystem Assessment warned that if current patterns of biodiversity loss continue to increase, then future generations of humanity may be at risk (Tisdell et al., 2007). It estimated that current species extinction rates may be a thousand times greater than normal in nature, and that 12% of bird species and 23% of mammalian species are threatened with extinction. Some evolutionary and ecological processes may also be endangered. Accordingly, the extinction crisis is one of the most critical challenges for the 21st century (Buijs et al., 2008).

A symbiotic relationship exists between biological diversity and cultural diversity, and this relationship constitutes a determining factor in ensuring sustainable human development (Bayers et

al., 2001). Religious beliefs and rituals (such an invariable part of the cultural milieu) are very much inter-linked and intimately related to management of the ecosystems. Religion forwards the conservation of natural biodiversity in several different ways. The first is by providing ethical and social models for living respectfully with nature (West et al., 2006). For most cultures, religion is a primary means of defining right and wrong. Since nature has spiritual powers, it commands respect and is included in the religious code of morality and etiquette by all religions, even though they may differ in their *ways* and *means*. These ethical beliefs and religious values influence our behavior towards others, including our relationship with all creatures and plant life. Lately, such beliefs and customs are being treated with disdain and defined with a singular term – *superstition*. Under such circumstances, religious values that acted as sanctions against environmental destruction do not retain a high priority and become displaced by economic factors (Stevens, 1997).

Like the Indian population itself, these forests are tremendously diverse, but they share an important commonality: they are all held sacred. Like many countries throughout the world, India has a

long history of nature worship, and that practice continues today, especially through the veneration of forest groves. These sacred groves, which are dedicated to local deities or ancestral spirits, are protected by local communities through social traditions and taboos that incorporate spiritual and ecological values (Srivastava et al., 2007). Preserved over the course of many generations, sacred groves represent native vegetation in a natural or near-natural state and thus are rich in biodiversity and harbor many rare species of plants and animals. The forces of the modern world are depleting sacred groves and weakening the traditions that protect them. Fortunately, thousands of sacred groves remain and many villages continue to observe traditional practices.

The various kinds of government sanctioned protected areas throughout the world, like national parks, nature reserves, wildlife refuges, and wilderness areas, are a major historical achievement and certainly necessary. However, they are insufficient for biodiversity conservation because they cover only a small portion of the planet and do not adequately sample the entire range of species, ecosystems, and biomes. Most of the world's biodiversity lies outside these government protected areas. However, throughout the world various kinds of community-based protected areas have developed since ancient times in connection with a multitude of diverse cultural practices including sacred places in nature (Sponsel et al., 1997). Restrictions on access and use of such areas, and especially for sacred places in nature, may reduce or even eliminate human environmental impact and thereby help protect species in the area. Nevertheless, only in the last two decades has the potential of community-based land and resource management systems to conserve biodiversity begun to be recognized by anthropologists, biologists, conservationists, environmentalists, and others (Orlove et al., 1996). The recognition of the actual or potential conservation role of sacred places in nature has been even slower and more recent (Bruner et al., 2001).

The importance of the environment in sustaining life has been realized since the beginning of civilization. Sages, saints and forest-dwellers regarded plants and wildlife as important components of their lives. Worshipping trees and plants to propitiate Gods and Goddesses has been in practice in the Indian society. Conservation of wildlife has been an integral part of the cultural ethos of the country (Srivastava et al., 2007). Conservation of biodiversity for sustainable life in future is a difficult task due to inadequate data on flora and fauna, conservation efforts and selection of areas. In India, informal protected areas exist, including sacred groves, which

exhibit rich floral and faunal diversity with some rare and threatened plant species. In compliance with the requirement under the Trade Related aspects of Intellectual Property Right (TRIPS) of the World Trade Organization (WTO), India chose the *sui generis* system under its Patent (second Amendment) of 2002 (Bala and Parida, 2007).

This paper is an attempt to document the different codes and ethics enshrined within Vishnoi tribe that have an inherent role towards the conservation of sacred groove and nature as a whole.

## 2. Sacred grooves in India

The existence of sacred groves in India most likely dates back to an ancient pre-agrarian hunter-gathering era, and their presence has been documented since the early 1800s. Believing trees to be the abode of gods and ancestral spirits, many communities set aside sanctified areas of forest and established rules and customs to ensure their protection. These rules varied from grove to grove but often prohibited the felling of trees, the collection of any material from the forest floor, and the killing of animals (Malhotra, 1998). Presiding deities administered punishment, often death, to individuals who violated the rules, and sometimes to the entire community in the form of disease or crop failure. As a result of these protective restrictions, preserved over countless years, sacred groves are now important reservoirs of biodiversity. Sacred groves are often the last refuge for endemic and endangered plant and animal species. They are storehouses of medicinal plants valuable to village communities as well as modern pharmacopoeia, and they contain wild relatives of crop species that can help to improve cultivated varieties. Sacred groves also provide for the water needs of nearby communities. Many sacred groves contain water resources such as ponds and streams, and the vegetative mass that covers the floor of a grove can absorb water during rainy seasons and release it during times of drought. Trees also improve soil stability, prevent topsoil erosion and provide irrigation for agriculture in drier climates. There has been no comprehensive survey of sacred groves in India, so their exact number and area are unknown. The total area of SGs in India as a whole, would be about 33,000 ha or 0.01 percent of the total area of India (Gokhale et al., 1998). At least 13,720 sacred groves have been reported in various regions of the country, but experts estimate that the actual number is likely 100,000 to 150,000 (Srivastava et al., 2007).

There is vast diversity among India's sacred groves. Some contain only a few trees, while others are hundreds of acres in size. Sometimes groves overlap with larger forested areas, while others exist as islands in open plains or desert. Even their names

vary from region to region. Most sacred groves in India are associated with the almost 40,000 endogamous groups within the Hindu caste system and other major religions such as Buddhism and Islam, along with other religious communities and traditional tribal groups. In many groves, villagers perform annual rituals and ceremonies to appease the presiding deity and ensure the well-being of the community. It is also common for people to make individual offerings, often in the form of terracotta figures, in exchange for wishes such as good health or harvest or the birth of a child. Sacred groves help to define the cultural identity of the communities that revere and protect them. They are also closely linked to the politics and economies of their communities, and their legal status and management vary among regions and individual villages (Ramakrishnan et al., 1994). Some groves are associated with and managed by separate caste groups within a community, some by a village as a whole, and some by neighboring districts within a larger geographical area. There are also large “pan-Indian” groves that involve people from many parts of the country. In some groves, all forms of resource extraction are strictly prohibited, while in others people may collect material such as fallen branches and leaves from the forest floor or fruit from the trees.

Sacred grooves are found from the western part of Rajasthan to the east of the Aravalli range (Figure 1). The sacred grooves in Rajasthan are instanced by the *vanis* of Mewar, the *kenkris* of Ajmer, the *orans* of Jodhpur, Jaisalmer, Bikaner and the *shamlat dehs* and *devbanis* of Alwar.



Figure 1: Biodiversity of Mount Abu Sanctuary, Rajasthan.

### 3. *Orans*- a unique example of sacred grooves

With the majority of people now living in urban environments, urbanization is arguably the most intensive and irreversible ecosystem change on the planet. Nearly half of Thar Desert forest cover has been lost to deforestation for meeting demands of

increased population. Although the western Rajasthan has suffered deforestation, portions of the biosphere called sacred groves have survived. The tradition in Rajasthan is an ideal example of support of the tradition for ecosystem services. The resources in the groves are used in controlled fashion or only in case of emergency. Here the Bishnoi and other tribes manage sacred groves called *orans* in the arid and desert regions of Rajasthan. ‘*Oran*’, a sacred grove is a piece of land that is held by the local community in honour and respect of a local deity.

Despite sparse vegetation and limited water resources, the area reportedly supports a higher density of human and animal populations than any other desert region in the world because of the conservation practices of its people. It is reported that *orans* account for 8 to 9 percent of the desert area. *Orans* are complex phenomena that can be viewed usefully as varying along several continua ranging from natural (or biophysical) to anthropogenic (or socio-cultural); prehistoric to historic, recent, or newly created; secret or private to public; single culture (or religion) to multicultural (or multi religious); intrinsic to extrinsic in value; uncontested to contested; and protected to endangered. Particular sacred places variously reflect one pole or another of some combination of these continua.

The basic philosophy of the Bishnoi faith is that all living things have a right to live and share resources, and the group has a set of abiding laws including a ban on killing animals and on felling trees, especially their most sacred *khejari* tree, which has numerous life-sustaining properties. In *orans* of Rajasthan, the *khejari* (*Prosopis cineraria*) is a keystone species, inseparably linked to the survival of many other species, and occupies a special position in Rajasthani culture. Its dropped leaves can be used for fodder, its dropped branches for fuel and its fruit for food. *Khejadi* trees stabilize sand dunes and they are said to increase yields of crops that grow close by. The *orans* also provide a protective habitat for the Indian gazelle and blackbuck. There are only a handful of documented sacred groves in Rajasthan, but their areas often exceed thousands of acres.

The Bishnoi consider trees, animals and even whole natural resources to be sacred. Their concept of sacred connotes something that is life sustaining and linked to rain and the fertility of the land. A sacred place is where spirits are present. Associated with it are certain rules of access as well as behaviors that are not allowed. Moreover, Byers and colleagues discovered that deforestation is at least 50% lower in sacred forests than in their secular counterparts.

These protected areas harbour biodiversity of the Thar Desert, including endangered, rare and

threatened plants and animals. The *orans* has rare plants such as *Acacia catechu*, *Acacia nilotica*, *Anogeissus pendula*, *Azadirachta indica*, *Blephariss indica*, *Boswellia serrata*, *Brachiaria ramose*, *Capparis decidua*, *Caralluma edulis*, *Crotalaria burhia*, *Ficus bengalensis*, *Ficus glomerata*, *Ficus religiosa*, *Glossonema varians*, *Haloxylon salicornicum*, *Lasiurus indicus*, *Leptadenia pyrotechnica*, *Prosopis cineraria*, *Tribulus terrestris*, *Zizyphus nummularia* etc. About 27 species are reported to be extinct from these groves. Since there is no record of biodiversity in the past, no one can say for sure how many species have been lost. Rare species like Gugal, Kadam (*Anthocaphalus indicus*), Dhak (*Butea monosperma*) etc. are on the threatened list.

*Orans* also provides shelter to the chinkara and godavan (Great Indian Bustard). Hunting, felling of trees and agricultural practices are taboo in the holy land of *orans*. Minor forest produce such as fallen fruits are collected by local inhabitants. None of these are utilized for commercial purposes. Due to faith and sanctity, *orans* is free from encroachment and indiscriminate exploitation (Figure 2) (Dagla et al., 2007).

In the pastoralist community's view, the *Oran* serves four main purposes: vegetation as grazing ground for the livestock, watering place for the livestock, resting places for the livestock and medicine in ethno botanical form. In the environmentalist's view, the *Oran* serves the following four purposes: refugia for bio-genetic diversity, repositories of ethno-social codes of relation and regulation vis-à-vis nature, venues of local and universal manifestation of aesthetic tradition and religiosity and community resources, commons or cultural space between private domain and the rest of cosmos.

There is no formal regulatory authority that imposes any type of legal control over the people of the region, but they abide by natural laws. As rightly quoted by Luther Burbank, 'Nature's laws affirm instead of prohibit; if you violate her laws, you are your own prosecuting attorney, judge, jury and hangman'. *Orans* are an oasis in the desert ecosystem that helps in maintaining the fragile ecosystem of the Indian Thar Desert (Jha et al., 1998).

*Orans* are stands of trees or patches of forest that local communities conserve primarily because of their religious importance. These groves serve economic, medicinal, social, and cultural functions. Some plant species in sacred grove even provide emergency foods during periods of drought, crop failure, and famine. Also *orans* help to protect watershed resources like seasonal rivers, soil fertility and moisture, and ecosystem processes such as

nutrient cycling. A variety of factors promote the conservation of biodiversity in these sacred groves like general or selective limits or prohibitions on the use of biotic species.

Moreover, in the face of degradation, conservationists and local communities of *orans* are recognizing that traditional knowledge and sacred practice are important elements in the conservation and management of these ecological treasures. According to a member of the Bishnois of Rajasthan, a tribe with a conservation-based religious faith so strong that some have sacrificed their lives to save sacred trees: "Any change in the world has to begin within the society. All this talk about nature and wildlife protection would be more effective if each individual was to believe in the earth as a living, breathing entity and fight for its survival the way we do."

Despite all these characteristics, *Orans* have undergone decline and shrinkage. This has happened due to abandoning traditional practices of natural resource conservation and management. Most of the herbs, which existed in *Orans*, have either become extinct or threatened to become extinct. Currently, at least 3% of the recorded wild flora and a somewhat larger number of wild fauna are on the threatened list in the area studied. For the last few decades, this area has lost about 70 % of its forests despite the fact that the biological diversity of the area is one of the most significant in India with several thousands of species of flora and fauna found in the area.

From the larger perspective it is evident that the *Orans* are operating today in something of an institutional vacuum and indeed it is not clear at the present time what agency enjoys jurisdiction over the *Oran*. As ownership, rights and responsibilities on *Oran* lands are not clearly defined in the revenue records, the State is gaining control over ownership of these lands rather than understanding the cultural significance in conservation and forest protection. This has denied economic benefits for the local communities. As a result, the traditional community practices of *Oran* conservation and management is rapidly being abandoned.

Once the forests have gone out of community control, there has been a decline in the area under sacred forests. Over a million people dependants on livestock are struggling hard for survival because of shrinking grazing grounds in '*Orans*'. These pastorals have to either undertake large scale migration into adjoining areas or resort to over grazing in near by forest area, which often cause them physical hardship, destruction of vegetation, social stress, often leading to conflicts. Today, the government is spending a huge amount on preserving wildlife sanctuaries, but still is not able to maintain

the standards of protection that existed in the old sanctuaries, such as *Orans*.

#### 4. Conclusions and Future Aspects

The rapid march of modernization over the past century has depleted India's sacred groves and altered the traditional social systems that have protected them. The threats to sacred groves differ as much as the regions and groves themselves. Sacred groves in many parts of the country have been destroyed over the past century to make way for development projects such as railroads, highways and dams. In many places the government has ignored local communities' customary management rights and allowed the development of commercial forestry operations or encroachment by people migrating from outside the community who do not respect traditional practice. Some "Pan-Indian" groves are burdened by large numbers of tourists and pilgrims. This has led to the clearing of areas in groves to make way for temples and a shift in focus to idols rather than nature itself. Of greatest concern is the loss of traditional wisdom and practices brought about by the increasing presence of westernized urban culture and an ever-expanding market economy. These forces have led many communities to lose their unified identity, a key element of their conservation practice, and to destroy resources in their sacred groves in return for short-term commercial gain. In the modern educational system, younger generations are not learning respect for local traditions and belief in the cultural importance of sacred groves. Many now view the practices of the past as superstition. Fortunately, many conservationists and communities, along with government and nongovernmental organizations in India have realized that development, progress and modernity do not mean turning ones back on tradition, but rather that traditional wisdom can and must be integrated into modern systems. The cause of protecting India's sacred groves has been gaining attention, and regional preservation efforts abound. New sacred grove management plans aim to restore power to local communities. Sacred grove awareness campaigns in communities and schools propose to educate people about the value of biodiversity conservation and to stimulate the revival of traditions.

Sacred places are a new frontier for interdisciplinary research on their own merits and for their relevance for biodiversity conservation. The religious or cultural designation of an area as sacred, especially those which are relatively natural, may either intentionally or coincidentally promote the conservation of its associated biodiversity. Such sacred places can complement national parks and other protected areas established by governments. Collaboration among religious, governmental,

scientific, and/or conservation agencies may be desirable for the protection of sacred sites and landscapes. Traditional approaches of biodiversity conservation should be recognized by the policy-makers. These practices must be integrated in the policies for better management of biodiversity in consultation with the local community.

Since the 1990s, sacred places have emerged as a new frontier for interdisciplinary research on their own merits and also for their actual or potential relevance for biodiversity conservation. This reflects the emerging recognition in many sectors of the important role that religion and spirituality can play in environmentalism.

Systematic research is needed on the variety of sacred places including *orans* with respect to biological matters such as their size, age, species composition, biodiversity level, and degree of naturalness as well as any historical, social, cultural, religious, economic, political, tenure, and legal matters. In particular, there is a need for controlled comparisons between sacred places and adjacent secular ones of the same size and type of biotic community in order to describe and assess any differences that might arise because of sacred status. Hypotheses about the conservation efficacy of sacred localities have to be tested empirically and quantitatively, rather than relying only on assumptions and assertions. However, in practice this may be difficult, impractical, or even impossible. Nevertheless, the relevance of many sacred places for biodiversity conservation is already strongly indicated by the accumulating work of numerous independent researchers and international organizations.



Figure 2: An *Oran*.



Figure 3. An Oran.

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