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Role of sacred groves in the conservation of traditional values of Odisha

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Introduction

Blessed with the abundance of natural resources, Odisha, holds the strongest traditions for its conservation. Protection of nature from further depletion due to human activities and the need for sustainable use of natural resources has been a challenge for mankind. Although Odisha remains endowed with vast natural and mineral resources; the hills and mountains, extensive forests, medicinal herbs and wildlife have more or less suffered almost infinite devastations. The leftovers are a result of the preservation of the resources due to conservation oriented cultural and religious traditions. In Odisha, one such notable practice of nature conservation is that of allotting areas of forest or groves to some deities and temples by the rural and aboriginal communities. Such forest patches containing sacred groves are large pieces of traditionally preserved unadulterated forest as a result of socio-cultural beliefs.

As per the definition provided by IUCN, Sacred groves form a part of worshiping nature and are considered as "Sacred Natural Sites". Although, people associated with such sacred groves are generally illiterate, they have meticulously brought out their traditional customs, rituals, ceremonies and way of forest life. Sacred groves are also reservoirs of many traditional medicines. With this realisation, there has been a rapid development in the study of resources belonging to sacred groves as well as their conservation. These practices are not only for ecological importance but also for socio-cultural and religious significance of the state. Keeping this in view, an attempt has been made to visit some selected sacred groves (Plate A- 1, 2) of the state and enumerate the common and endemic biowealth belonging to those groves.

Plate A Sacred groves of Odisha, 1) Sacred groves in Kapilash, 2) Sacred groves in Khurda.

Biodiversity in sacred groves

Sacred groves are considered as repository of local biodiversity. A good number of studies have been conducted throughout India and the literature provides ample evidences for this statement. The restriction in resource usage and suitable microclimate are thought to be the primary factors for the species richness in some of the sacred groves. The unintentional introduction of new members leads to increase in species diversity in these areas. Studies on sacred groves biodiversity are often concentrated on higher groups of angiospermic flora neglecting the lower groups of plants as well as faunal diversity. There are reports on avifauna, insects, molluscs and reptiles in some of such groves but detailed studies are yet to be done. An overview of the floral diversity studies have shown that regional diversity is well represented in grove system, larger groves often have the relic species of the region. There are frequent changes in floral composition due to various external influences. Grove floral diversity is often highlighted because of the prevalence of endemic and rare threatened members in some of the grove biota.

Beliefs and practices

Typically, such groves are associated with the concept of "presiding deities". While most of these sacred deities are associated with local Hindu Gods, sacred groves of Islamic and Buddhist origins, and some based on smaller local religions and folk religions are also known. The Hindu tradition considers forests (*Van/Ban*) to be of three types - *Tapovan, Mahavan* and *Sreevan. Tapovan* are forests associated with penance (*Tapas*), and are inhabited by saints and *rishis*. *Mahavan* refers to the grand natural forests. *Tapovan* and *Mahavan* are considered as *"Raksha"* (sanctuary) for flora and fauna as ordinary human beings are not allowed to enter these forests as per tradition. *Sreevan*, which means, "forests of prosperity", consists of dense forests and groves. However these beliefs may not be tenable now and new scientific terminologies have been adopted for such restricted areas. As per religious beliefs, typical recreational activities are also associated with these groves such as *jhoola/jhoolan*. In some sacred groves a cluster of five trees often act as representative of five elements; Earth, Water, Fire, Air and Space are also compared. The richness of diversity is probably dependent upon the sacred beliefs & thoughts prevalent in the region.

Sacred grove ecosystem

Sacred groves of Odisha represent diverse spectrum of ecosystems. Sometimes they represent the ancient diversities of that area containing ancient species which are at the verge of extinction.[1] Groves may be located amidst the barren landscapes or grasslands, hill slopes, amidst the agricultural landscapes, coastal plains or deserts. With the rapid ongoing changes in society and land use patterns, some of such groves have lost their identity but nowhere except the groves, one can expect regional ecosystem that can serve as model or replicon of the system existing in these sites. Sacred groves are therefore of great use for the researchers and educators.

Sacred groves of Odisha are also harbours of some unique socio-cultural plants like Saraca asoca (Plate B.1), Mesua ferrea (Plate B.2) (Plate B.3), Memocylon umbellatum , Michelia champaca, Bombax ceiba, Murraya paniculata, Couroupita guianensis etc. They are also rich in some edible medicinal plants such as Phyllanthus emblica (Plate D.1), Dillenia indica, Annona squamosa, Annona reticulata (Plate D.2), Aegle marmelos, Ziziphus mauritiana (Plate D.3), Anacardium occidentale, Mangifera indica etc.

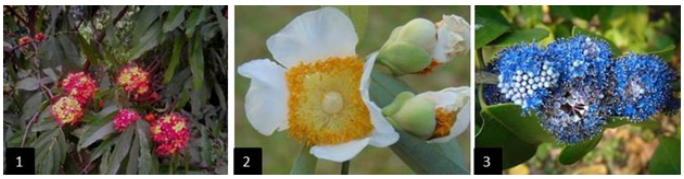

Plate B Unique floras in sacred groves of Odisha, 1) Flowers of *Saraca asoca*, 2) Flowers of *Mesua ferrea*, 3) Flowers of *Memecylon umbellatum*.

Plate C Endemic and RET floras of Odisha in sacred groves, 1) *Pomatocalpa decipens* in Kapilas, 2) *Alphonsia madraspatana* in Khandagiri-Udaigiri.

Endemics in sacred groves

Groves, at times, act as repositories of rare and endemic plants and animals. A good number of studies have indicated the endemic species distribution in groves from different regions. North-East Himalayan endemic trees like, *Acer laevigatum, Drimycarpus racemosus, Litsea laeta, Quercus glauca Ilex venulosa, Citrus latipes* are reported from sacred groves of Meghalaya. Western Ghat endemic species viz. *Aglaia elaeagnoidea, Diospyros pruriens, Humboldtia brunonis* (plants), Loten's sunbird *(Nectarinia lotenia)* and the Nilgiri Flycatcher (*Eumyias albicaudata*) have been found in sacred groves of Kodagu, Karnataka. Similarly, Western Ghat endemic molluscs (*Euplecta cacuminifera, Mariaella dussumieri, Nicida liricincta* etc.) have been noticed in South Indian sacred groves. In Odisha, *Alphonsia madraspatana* (Plate C.2) are endemic and found in Khandagiri-Udaigiri caves, Bhubaneswar. A RET (rare, endangered and threatened) plant *Pomatocalpa decipens* (Plate C.1) has been noticed in narrow patches of Kapilas in Dhenkanal district of the state.[2,3]

Plate D Common edible fruits in the sacred groves of Odisha, 1) Fruits of *Phyllanthus emblica*, 2) Fruit of *Annona reticulata*, 3) Fruits of *Ziziphus mauritiana*.

Threats

Threats to the groves are probably due to urbanization, over-exploitation of resources (like overgrazing and excessive firewood collection), environmental destruction and/or excessive inappropriate uses for religious practices (Figure 1). Though many of the groves are looked upon as abodes of Gods many other have been partially/completely cleared for construction of shrines and temples. Sometimes the floras in the sacred groves are destroyed due to invasion of weeds like *Chromolaena odorata* and *Lantana camara*. This has been most common in some of the scared groves located at Bhubaneswar.

Keeping all these in view an attempt was made to study the flora of some selected sacred groves like Kapilas, Taptapani, Gonasika, Hadagarh elephant sanctuary, Khandagiri-Udaigiri caves, Dhauli Stupa, Konark Temple and other small groves of different locations of the state. Authors enumerated the common plant taxa (Table 1) and studied various problems like threats to sacred groves and their ecological impacts.[4] Awareness should be created among the local people and tourists visiting to these sites for protection and conservation of floral/faunal diversities. Scientific measures should be taken for protection and maintenance of the endangered or rare plants in such groves. Initiatives should be taken by the government to protect such green patches available near the religious sites of the state. Let the religious beliefs be the source of inspiration to protect the scared groves of Odisha.

Table 1 List of common flora found in the some selected scared groves of Odisha

Botanical name	Family	Groups\purposes
Abrus precatorius	Fabaceae	Medicinal
Acacia auriculiformis	Mimosaceae	Ornamental
Aegle marmelos	Rutaceae	Edible
Albizia lebbek	Mimosaceae	Ornamental
Amaranthus spinosus	Amaranthaceae	Edible
Andrographis paniculata	Acanthaceae	Medicinal
Annona squamosa	Annonaceae	Edible
Annona reticulate	Annonacea	Edible
Anthocephalus cadamba	Rubiaceae	Ornamental
Artocarpus heterophyllus	Moraceae	Edible
Artocarpus lacucha	Moraceae	Edible
Azadirachta indica	Meliaceae	Medicinal
Barleria cristata	Acanthaceae	Ornamental
Bauhinia vahlii	Caesalpinaceae	Ornamental
Bombax ceiba	Malvaceae	Ornamental
Caesalpinia pulcherrima	Caesalpinaceae	Ornamental
Calotropis gigantea	Asclepiadaceae	Medicinal
Cassia fistula	Caeslpinaceae	Ornamental
Cissus quadrangularis	Vitaceae	Medicinal
Combretum roxburghii	Combretaceae	Medicinal
Cynodon dactylon	Poaceae	Cultural
Delonix regia	Caeslpinaceae	Ornamental
Dioscorea alata	Dioscoreaceae	Edible
Ficus benghalensis	Moraceae	Cultural
Ficus religiosa	Moraceae	Cultural
Gymnema sylvestre	Asclepiadaceae	Medicinal

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Table Continued..

Botanical name	Family	Groups\purposes
Hibiscus rosa sinensis	Malvaceae	Ornamental
Ipomea aquatic	Convolvulaceae	Weeds
lagerstroemia parviflora	Lythraceae	Ornamental
Mangifera indica	Anacardiaceae	Edible
Melia azadirachta	Meliaceae	Ornamental
Mesua ferrea	Calophyllaceae	Ornamental
Michelia champaca	*Michelia champaca*	Ornamental
Mirabilis jalapa	Nyctaginaceae	Ornamental
Murraya koenigii	Rutaceae	Edible
Ocimum sanctum	Lamiaceae	Medicinal
Pandanus foetidus	Pandanaceae	Ornamental
Pithecellobium dulce	Fabaceae	Ornamental
Plumeria rubura	Apocynaceae	Ornamental
Polyalthia longifolia	Annonacea	Ornamental
Pongamia pinnata	Fabaceae	Ornamental
Psidium guajava	Myrtaceae	Edible
Punica granatum	Lythraceae	Edible
Rauvolfia tetraphylla	Apocynaceae	Medicinal
Saraca asoca	Caeslpinaceae	Medicinal
Streblus asper	Moraceae	Edible
Strychnos nux-vomica	Loganiaceae	Medicinal
Syzygium cumini	Myrtaceae	Edible
Tamarindus indica	Fabaceae	Edible
Terminalia arjuna	Combretaceae	Medicinal
Terminalia ballerica	Combretaceae	Medicinal
Terminalia catappa	Combretaceae	Medicinal
Terminalia tomentosa	Combretaceae	Timber
Ziziphus onoplea	Rhamnaceae	Edible

Figure 1 Some common threats to scared groves of Odisha.

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None.

Conflict of interest

The author declares no conflict of interest.

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