

Sacred Groves of Badampahar Forest Range, Rairangpur Forest Division, Odisha, India

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ABSTRACT

The worship practices of indigenous people represent a symbiotic relationship between human beings and nature. Since old times conservation of biodiversity and natural resources has been an identical part of diverse cultures in different ways. Sacred groves are those patches of trees on forest land that are protected by local and Indigenous people with religious perspective and connotations. These are tracts of virgin forests with highly rich diversity, which have been protected by the traditional societies and indigenous communities since ages for their cultural and religious beliefs. Every sacred grove carries own myths, lore and legends which form the integral part of the sacred groves. These groves are distributed across the globe, and are diverse culturally. It recognizes them in different ways encoding various rules and regulations for their protection. India is rich in culture and tradition where sacred groves occur in different parts of Indian sub-continent viz., Central India, Western India, North-east India, etc. particularly where the tribal and ethnic communities live. Sacred groves play a vital role in biodiversity conservation and management. Several plants and animal species that are threatened in the wild are still well conserved in some of the groves. It also emphasizes that a number of medicinal plant species that are uncommon in wild forest lands, are abundant in many sacred groves. Furthermore, rare, threatened, endangered and endemic species are often concentrated in these groves. The religious belief of tribal and local communities plays an impressive role in utilization and conservation of flora and fauna of the particular region. Although, by the passage of time, adequate number of changes have taken place in the extension of the sacred groves, in their vegetation structure, people's perception towards them and religious belief. The current study focused on documentation of all the sacred grooves of Badampahar Forest Range along with their floral and faunal composition. The study also aimed on documentation of all the traditional social beliefs associated to every listed sacred grove.

Key words: *Badampahar, Documentation, Faunal and floral composition, Protected forest lands, Sacred Groves, Traditional beliefs.*

Introduction

Sacred groves are termed as a patch of trees or a small forest untouched by the locals used for social,

cultural and religious purposes. These are also called as Church Forests, fetis forest, sacred forests, natural museums of giant trees, treasure houses of threatened species, dispensaries of medicinal plants,

regulators of water sheds, recreation centres for urban life, veritable gardens for botanists, gene banks of economic species, paradise for nature-lovers and laboratory for environmentalists (Bhagwat *et al.* 2005). These are worldwide found i.e., found in all parts of the world (Cardelús *et al.*, 2013). This is a conserved land with various types of flora and fauna inhabiting in this. These are man-made or community conserved 'Biodiversity Conservation Center' to conserve biodiversity at its root level. To conserve biodiversity, many formal laws were enacted including 'The Biological Diversity Act 2002' by the Govt. of India. Besides these laws many traditional communities put forward the interest to conserve Biodiversity as a whole. The best example for that is the 'Sacred groves.'

Distribution of Sacred Groves Across the World, India and Odisha

Sacred groves are worldwide in nature and are found in every parts of the World including Ethiopia, Ghana etc. The traditional community have different rules and regulations to protect their respective sacred groves from which they were differentiated and recognised. In India, a rich number of various sacred groves are found depicting different communities viz., Western Ghats, Central India, Northeast India, etc. These are termed as according to the local inhabitants surrounding them.

Materials and Methods

Study Area

Badampahar which falls under Forest Range Office, Rairangpur. It is a part of Simlipal Biosphere Reserve. It is situated in Mayurbhanj District, Odisha between 22° 6' 0" North and 86° 6' 0" East. The geographical area of Badampahar forest cover is 34081 hectares and that of the whole study site is 9374 hectares. It is 39 km away from the Forest Division Office and 57km away from Khairi Nivas. Being adjacent to Simlipal Biosphere Reserve, the area is rich in biodiversity and is widely diverse which sets a very good platform for scientific studies. It is the home to various types of birds, mammals, small insects, etc.

Methods

The whole study was conducted from February to July 2021 covering early Summer, Summer and Pre-

monsoon as that is the peak season for the traditional people in making rules and regulations for their associated sacred groves. A team of three members was constituted for this particular study, two for field visits with prepared questionnaire about the flora, fauna found there, plants with their medicinal and religious uses, common animals and birds associated to their local beliefs etc., and one for literature review and data compilation. A total of 22 sacred groves were visited in the blocks of Kusumi and Bisoi for this purpose. Necessary information was collected from five people in each centre majority of whom were functioning priests serving in that area and other aged and young locals. A total of 200 people (three ages: elderly people exceeding 60 years, adult people ageing between 30-60 years and very young people ageing below 30 years) were contacted for their views on the past, present and future status of the SGs. The information was later compiled, tabulated and analysed. The study was conducted both by door-to-door survey and public interactions by gatherings. For improving the survey vocal sound recordings (audio-video recordings) and photographic evidences were taken. In every village along with the villagers, the local priests were also interviewed personally. After the field surveys the data were compiled and arranged in the data-sheets.

Results and Discussion

The Sacred Groves (Jahira) found in Badampahar Forest Range are rich in floral and faunal diversity (Tables 1, and 2). An impressive variety of floral and faunal species was recorded during the study. A total of 38 floral and 50 faunal species including mammals, birds, and butterflies were recorded from this SGs (Tables 1, and 2). Out of the 38-plant species recorded from the survey, 26 plants with high medicinal values were found. All the plants have impressive economic values still all the plants are secured and safe-guarded, no villagers can use any parts of the plants of the sacred groves. Sal tree, Asana, Saguan, Neem, Jamun, Piplal, Palash, Mahula, Patas were the dominant local tree species found in most of the sacred groves. Several plant species recorded from the SGs have one or more ethno-medicinal values (Tables 4). A total of 19 species of birds were listed from the SGs along with this, 8 species of mammals, 6 species of reptiles &

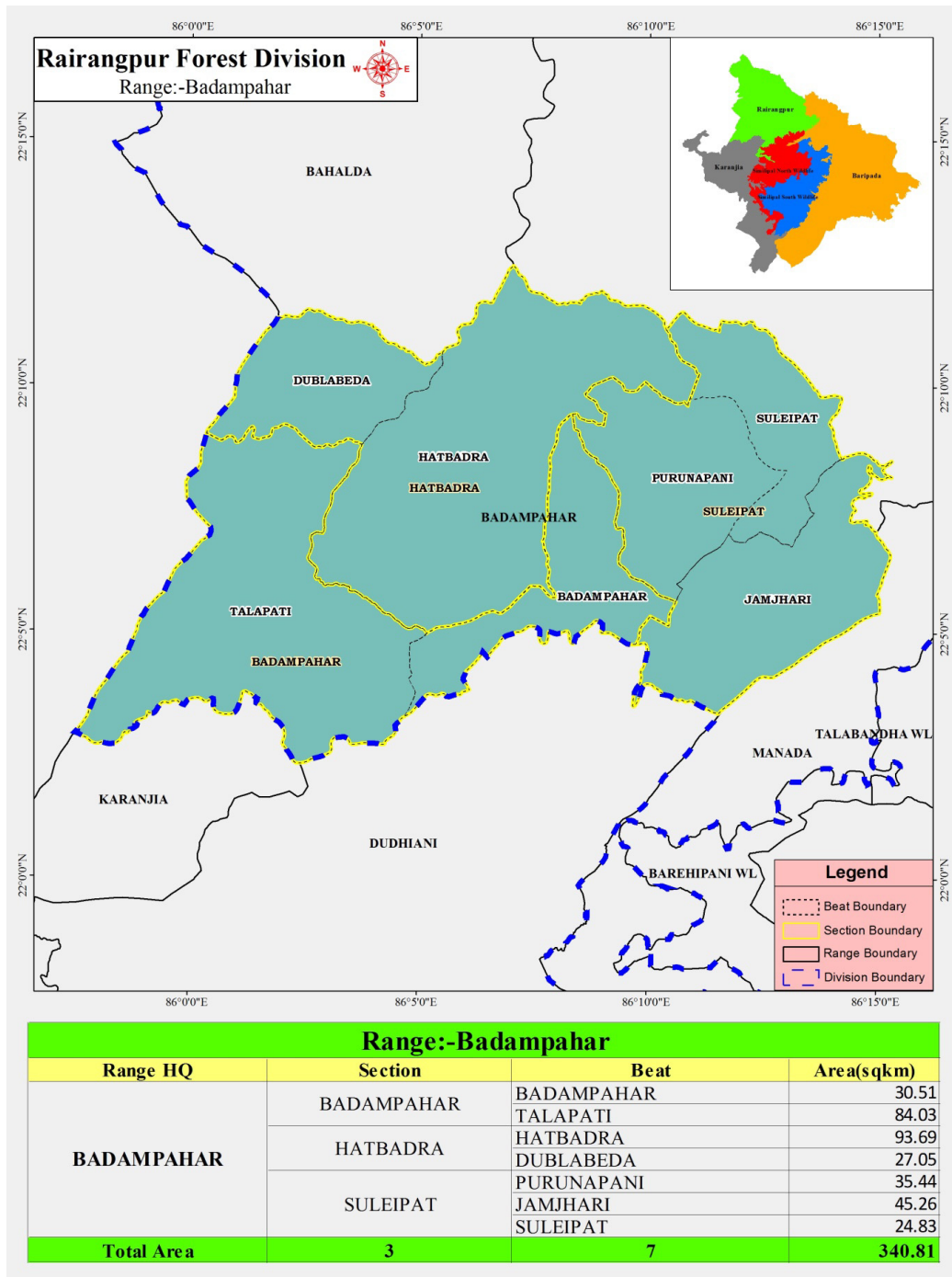


Fig. 1. Study area Map

amphibians, and 17 species of butterflies were also recorded from the SGs. All the traditional people of respective Sacred groves have their own rules and regulations to worship their deities at festive times. Many groves follow the wearing of Kaccha and Banyan for Man and Jhal Saree for Woman. In few sacred groves ladies were allowed but in most of the

sacred groves the entries of ladies were found banned. Major festivals recorded from several SGs were *Bena puja*, *Baha puja*, *Asadia puja*, *Nuakhia puja*, *Mamoneand Buna puja*. Chicken, Mutton, Handiya (local liquor) and Khichdiprasads (offerings to deities) were found same in all the Sacred groves.

Importance of Sacred Groves

As according to various scientific reports, the sacred groves can support and conserve different flora and fauna (Balasubramanyan and Induchoodan, 1996; Basu, 2000; Boojh and Ramakrishnan, 1983; Boraiah *et al.*, 2003). It plays an important role in ecosystem services such as cleaning environment i.e., air, soil and water conservation, conservation of various rare, endangered, endemic flora and fauna, carbon sequestration, temperature control, reduction in erosive force of water, conservation of soil, maintenance of hydrological cycle, availability of water of desired quality, natural dispersal of seeds of useful species and conservation of traditional knowledge. The sacred groves also help in maintaining the desirable health of ecosystem, reduce habitat destruction, conserve the viable population of pollinators and predators, serve as the potential source of propagules that are required for colonization of wastelands and fallows, conserve the indigenous flora and fauna and preserve the cultural and ethical practices developed through indigenous knowledge of generations (Chand Basha, 1998;

Chandrashekara *et al.*, 1996; Sunitha and Rao, 1999).

Belief and myth towards soil and water conservation

Plants like vetiver grass (*Vetiveria zizanioides*) and Eucalyptus species are maintained to bind the soil thereby preventing soil erosion.

Approach towards animal conservation

Almost all Hindu Gods are associated with animals, birds and creatures as their vehicles or vahanas. This concept is to promote harmony in nature to maintain ecosystem

Conservation of Floral Diversity

Sacred groves are the best example of in-situ conservation of biodiversity, where flowers like hibiscus (*Hibiscus rosa-sinensis*), marigold (*Tagetes erecta*), jasmine (*Jasminum officinale*) Brahmakamal (*Saussurea obvallata*) are found in plenty in many SGs.

Indicator to Air pollution, Different plant species found previously

Some lichen species found in the sacred groves

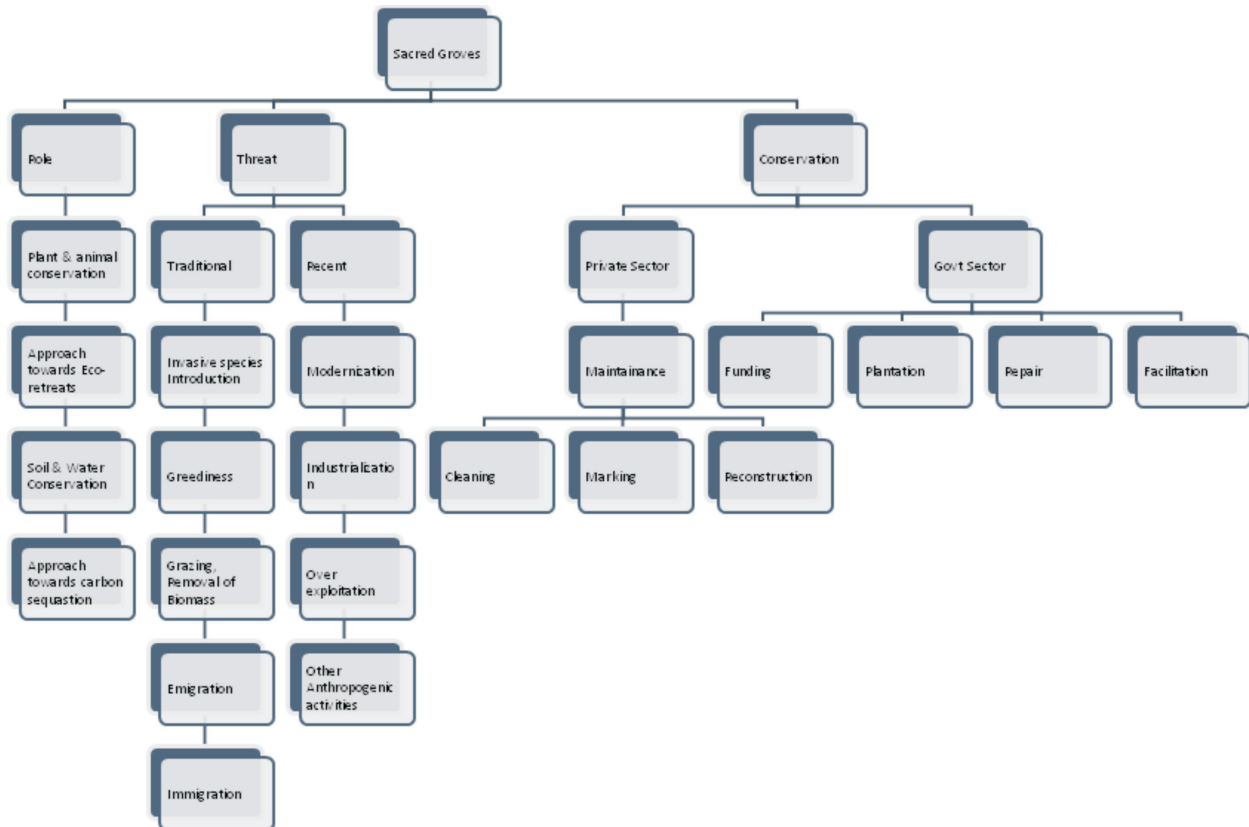


Fig. 2. Schematic Representation.

Table 1. List of Zahira (SGs)

Sl. No.	Name of the Jahira	Area in Hectare	Flora	Fauna
1.	Badamkuradihi	0.024.	Sal, Mahula, Asana, Kuruchi, Kendu, Banayan, Neem, Gandhan, Khakada, Palasa, Karanja, Arjun, Devdanu, and kendu.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted and Eurasian colored Dove, Crow etc.
2.	Satpautia	0.141.	Sal, Mohula. Neem, Sunari, and Aana.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Indian Roller, Bank and Pied Myna, Spotted Dove, Crow, Rufous treepie etc.
3.	Jodapokhari	0.291.	Sal, Mahula, Asana, Kendu, Banayan, Neem, Aswastha.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted and Dove, Crow.
4.	Rayasahi	0.141.	Sal, Asana, Mohula, dhaura, Satabari, Kendu, Jammun, Chirayita.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted Dove, Parakeet, Rabbit, Deer, Barha (jungle Pig), Jackal.
5.	Bhuyanbasa	0.651.	Sal, Mahula, Asana, Kuruchi, Dhauna, Kadam, Kendu, Banayan, Sunari, Pindna, Neem, Gandhan, wood apple, Harida Kalikendu.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted and Eurasian colored Dove, Crow etc.
6.	Pahadpur	0.02.	Sal, Asana, Mohula, dhaura, Kendu, Harida, Sunari Jammun, Chirayita, Chara	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted Dove, Parakeet, Rabbit, Jackle.
7.	Chuapani	0.182.	Sal, Mahula, Asana, Kuruchi, Kendu, Banayan, Neem, Palasa, Karanja, Arjun, Devdanu, and kendu.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted and Eurasian colored Dove, Crow etc.
8.	Keshargadia	0.02.	Sal, Mahula, Asana, Kuruchi, Kendu, Banayan, Neem, Gandhan, Khakada, Palasa, Karanja, Arjun, Devdanu, and kendu.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow, and Common Rose), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted and Eurasian colored Dove, Crow etc.
9.	Dalki	0.161.	Sal, Mahula, Asana, Kuruchi, Kendu, Banayan, Neem, Gandhan, Khakada, Palasa, Karanja, Arjun, Devdanu, and kendu.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted and Eurasian colored Dove, Crow etc.
10.	Kitachua	0.028.	Sal, Mahula, Asana, Kuruchi, Kendu, Banayan, Neem, Gandhan, Palasa, Karanja, Arjun, Devdanu, and kendu.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted and Eurasian colored Dove, Crow etc.

Table 1. *Continued ...*

Sl. No.	Name of the Jahira	Area in Hectare	Flora	Fauna
11.	Jagannathpur	0.5.	Sal, Mahula, Asana, Kuruchi, Kendu, Banayan, Neem, Gandhan, Khakada, Palasa, Karanja, Arjun, Devdanu, and Kendu.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted and Eurasian collored Dove, Crow, Rabbit and Barking Deer etc.
12.	Chaunradihi	0.6.	Sal, Harida, Neem, Chatiani, Karonja, Dhaura, Dudhi, Palash, Sunari, Khajuri, Bisalyakarari, Kali Kendu, Lajakuli etc.	Butterflies (Plain tiger, Common Emigrant, Grass yellow, Bush Brown, Tawny coster etc.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted and Eurasian collored Dove, Crow etc.
13.	Gobindpur	0.515.	Sal, Asana Palasa, Sagan, Neem, Banayan.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted Dove, Parakeet.
14.	Suliduma	0.7.	Sal, Mahula, Asana, Kuruchi, Kendu, Banayan, Neem, Gandhan, Khakada, Palasa, Karanja, Arjun, Devdanu, and Kendu.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted and Eurasian collored Dove, Rufoustreepie Crow etc.
15.	Edelbeda	1.0.	Sal, Mahula, Kendu, Banayan, Neem, Aswastha, Kalibohu, Bisalyakarani, Dudhi, Ankula, Churla, Pita alu (sexual problem) Akanbindhi, Bhuminimba, Patas, jammu, Sunari, Belo, Sidha, Acasia, Bahada, Harida, Piasala, Mohula, Sagan, Palas, Bisalyakarani, Dhaura.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted Dove, Crow, Prakeet, Rabbit, Barcking deer.
16.	Gopalpur	0.1.	Sal, Mahula, Kendu, Banayan, Neem, Aswastha, Kalibohu, Bisalyakarani, Dudhi, Ankula, Churla, Pita alu (sexual problem) Akanbindhi, bhuminimba, Hatajoda (cactus)(Fig: 02), and Kumarnoti (Fig: 03)	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted Dove, and Crow.
17.	Burudihi	0.3	Sal, Mahula, Asana, Kendu, Banayan, Neem, Aswastha, Kuruchi, Harida, Bahada, Kalibohu, Bisalyakarani, and Dudhi,	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted and Dove, Crow.
18.	Andiadukra	0.2	Sal, Mahula, Asana, Kuruchi, Kendu, Banayan, Neem, Gandhan, Khakada, Palasa, Karanja, Arjun, and kendu.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted and Eurasian collored Dove, Crow etc.
19.	Solakudar	0.4	Sal, Arjuna, Piasala, Kusuma Debbaru, Patuli, Palasa, baincha, Kohimo, Sagan, Luhajangi, Dudhi, Valia, Neem, Chara, Dhaura, Jamun, Kendu,	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted Dove, Parakeet.

Table 1. Continued ...

Sl. No.	Name of the Jahira	Area in Hectare	Flora	Fauna
20.	Patharkata	0.4	Sal, Mahula, Asana, Kuruchi, Kendu, Banayan, Neem, Gandhan, Khakada, Palasa, Karanja, Arjun, Devdanu, and Kendu.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted and Eurasian collored Dove, Crow, Rabbit and Barking Deer etc.
21.	Dhakata	2.7	Sal, Arjuna, Piasala, Ankula, Asana, Jammu, Kendu, Harida, ambo, Banayan, Wood apple, Kuruchi, Palasa, Dudhi, Ome.	Butterflies (Spot swordtail, Common Emigrant, Grass yellow.), Birds (Drongo, Indian Roller, Bank and Pied Myna, Spotted Dove, Para keet.
22.	Bhitaramda	0.3	Sal, Mahula, Asana, Kuruchi, Kendu, Banayan, Neem, Gandhan, Khakada, Palasa, Karanja, Arjun, Devdanu, and Kendu, Orchid (Fig: 01).	Butterflies (Spot swordtail, Plain Tiger, Common Emigrant, Grass yellow.), Birds (Fork tailed-Drongo, Indian Roller, Bank and Pied Myna, Spotted and Eurasian collored Dove, Crow etc.

showed a pure environment hence showing a maintained air-quality index in these areas. Some patches of *Clerodendrum infortunatum* show the existence of *Shorea robusta* plants as it is the indicator species to Sal Plants. Where there is the depletion of Sal plants there we must find these patches. From the study area we found 12-16 *Clerodendrum* patches from which we may conclude that there we may find the Sal trees previously. Some hemiparasitic plants like *Dendrophthoe falcate* also found from guava plants (Host plant) of the study area which shows the diversifying nature of various sacred groves.

Threats to Sacred groves

The traditional ways of resource management are becoming non-functional day by day due to direct conflict between ever increasing human population and limited natural resources which is imposing dif-

ferent threats to sacred groves in all parts of the world. The study found a number of threats to sacred groves including gradual decrease in area and number of sacred groves, lack of documentation, no effort for conservation etc. It has been also found that no legislative protection has been implemented in the study landscape as well as in India so far. It has also seen that cultural and religious changes among the youth are so rapid that they are distracting from the path to conserve ecosystem as well as Biodiversity.

Conservation practices

The study found that the sacred trees (trees present in the sacred groves) were prohibited from cutting and not axed except when wood is needed for the religious purposes like construction and repair of temple buildings or in cases like worshipping, death



Fig. 3. SG of Chunradihi village



Fig. 4. SG of Bhuyanbasa



Fig. 5. SG of Jagannathpur

Table 2. List of Medicinal Plants

Sl. No.	Family	Scientific name	Local name	Parts used	Medicinal use	Methods of use
1	Anacardiaceae	<i>Buchanania lanzan</i>	Chara	Bark, seed	Diarrhoea	Seed oil and bark extract (Orally)
2	Anacardiaceae	<i>Mangifera indica</i>	Amba	Stem Bark	Dysentery	Fruit and leaf (Orally, externally)
3	Apocynaceae	<i>Holarrhena pubescens</i>	Kuruchi	Bark	Malaria	Decoction of bark (Orally)
4	Apocynaceae	<i>Alstonia scholaris</i>	Chatiani	Leaf	Jaundice	Juice and Powder (Orally)
5	Asparagaceae	<i>Asparagus racemosus</i>	Satabari	Root	Stomach problems	Powder, juice (Orally)
6	Asteraceae	<i>Ageratum conyzoides</i>	Pokasunga	Leaf	Skin infection	Juice (Orally)
7	Cactaceae	<i>Opuntia stricta</i>	Nagafeni	Phylloclade	Swelling of joints	Juice (Orally)
8	Caesalpiniaceae	<i>Bauhinia variegata</i>	Kanchana	Root, bark	Mouth problem, stomach	Leaf, stem juice (Orally)
9	Conbrataceae	<i>Anogeissus latifolia</i>	Dharua	Bark, gum, leaf	Diarrhoea	Gum with a cup of water for lactation
10	Cornaecea	<i>Alangium salviifolium</i>	Ankula	Leaf, Bark	Wound, infection due to snake bite	Powder (Oral)
11	Ebenaceae	<i>Diospyros melanoxylon</i>	Kendu	Stem, fruit, bark	Night blindness	Fruit (Orally), Stem and Bark (Externally)
12	Ebenaceae	<i>Diospyros malabarica</i>	Kalikendu	Leaf, bark	Dysentery	Bark extract (Orally)
13	Euphorbiaceae	<i>Croton roxburghii</i>	Putuli	Leaf, seed	Diarrhoea	Seed oil (Orally)
14	Euphorbiaceae	<i>Phyllanthus emblica</i>	Amla	Leaf, fruit, seed		Improving eye Juice, fruit (Orally)
15	Fabaceae	<i>Mimosa Pudica</i>	Lajakuli	Root	Stomach problem	Root paste (Orally)
16	Lamiaceae	<i>Gmelina arborea</i>	Gambhari	Root, bark	Wound treatment	Root paste (Externally)
17	Lauraceae	<i>Cinnamomum tamala</i>	Tejpatra	Leaf	Digestion, Cough, Dental	Inhale, Externally and Orally
18	Lecythidaceae	<i>Careya arborea</i>	Kumbhi	Leaf	Skin infection	Orally and externally as an embrocation
19	Leguminosae	<i>Butea monosperma</i>	Palas	Flower	Dysentery	Flower juice (Orally)
20	Meliaceae	<i>Azadirachta indica</i>	Neem	Leaf, fruit	Cold, chickenpox	Juice, paste (Orally and externally)
21	Moraceae	<i>Ficus religiosa</i>	Aswasta	Stem, bark	Skin infection	Stem, Bark Paste (Externally)
22	Myrtaceae	<i>Syzygium cumini</i>	Jammun	Fruit, seed	Common cold, diabetes	Fruit and seed powder (Orally)
23	Poaceae	<i>Cynodon dactylon</i>	Duba	Leaf	Nasal problem	Leaf paste, juice (Externally, orally)
24	Rutaceae	<i>Aegle marmelos</i>	Bela	Fruit, leaf	Digestion, chronic, diarrhoea	Orally
25	Sapotaceae	<i>Madhuca longifolia</i>	Mohula	Leaf, bark	Common cold	Infusion of bark (Orally)
26	Gentianaceae	<i>Swertia chirayita</i>	Chiraita	Leaf	Malaria	Leaf juice (Orally)



Fig. 6. *Vanda tessellata*



Fig. 7. *Cissus quadrangularis*



Fig. 8. *Ampelocissus latifolia*



Fig. 9. Flying fox camp on SG



Fig. 10. Sacred groves overview



Fig. 11. *Jatropha gossypifolia*



Fig. 12. Jahira God and Goddess



Fig. 13. Gonden skink



Fig. 14. SG of Solakudar village

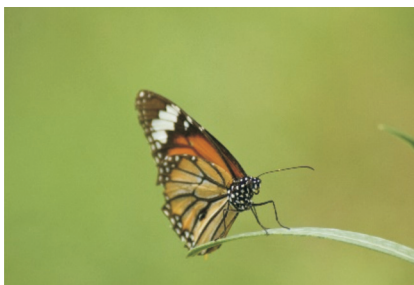


Fig. 15. Plain Tiger



Fig. 16. Common Sailor

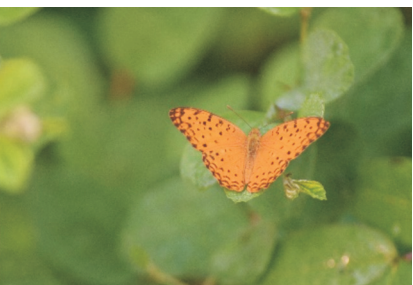


Fig. 17. Common leopard



Fig. 18. Indian Roller



Fig. 19. House Sparrow



Fig. 20. Rufous treepie

Table 3. List of Flora and Fauna Found in various Sacred Groves

Flora recorded in Sacred Groves		
Common name	Family	Scientific name
Sal	Dipterocarpaceae	<i>Shorea robusta</i>
Asana	Fabaceae	<i>Pterocarpus marsupium</i>
Dhaura	Combretaceae	<i>Anogeissus latifolia</i>
Kusuma	Sapindaceae	<i>Schleichera oleosa</i>
Kendu	Ebenaceae	<i>Diospyros melanoxylon</i>
Saguan	Lamiaceae	<i>Tectona grandis</i>
Neem	Meliaceae	<i>Azadirachta indica</i>
Jamun	Myrtaceae	<i>Syzygium cumini</i>
Acasi	Fabaceae	<i>Acacia longifolia</i>
Patas	Myrtaceae	<i>Eucalyptus globulus</i>
Ptuli	Bignoniaceae	<i>Stereospermum angustifolium</i>
Chara	Anacardiaceae	<i>Bunchanania lanjan</i>
Palasha	Fabaceae	<i>Butea monosperma</i>
Debdaru	Pinaceae	<i>Cedrus deodara</i>
Chirata	Gentianaceae	<i>Swertia chirayita</i>
Valia	Nyctaginaceae	<i>Bougainvillea glabra</i>
Karanja	Fabaceae	<i>Millettia pinnata</i>
Harida	Combretaceae	<i>Terminalia chebula</i>
Bahada	Combretaceae	<i>Terminalia bellirica</i>
Amla	Phyllanthaceae	<i>Phyllanthus emblica</i>
Sunari	Fabaceae	<i>Cassia fistula</i>
Kumbhi	Lecythidaceae	<i>Careya arborea</i>
Amba	Anacardiaceae	<i>Mangifera indica</i>
Mohula	Sapotaceae	<i>Madhuca longifolia</i>
Bela	Rutaceae	<i>Aegle marmelos</i>
Bara	Moraceae	<i>Ficus benghalensis</i>
Aswastha	Moraceae	<i>Ficus religiosa</i>
Ankula	Cornaceae	<i>Alangium salvifolium</i>
Bisalyakarani	Asteraceae	<i>Tridax procumbens</i>
Satabari	Asperagaceae	<i>Asparagus racemosus</i>
Bhuinnimba	Acanthaceae	<i>Andrographis paniculata</i>
Akan bindhi	Menispermaceae	<i>Cissampelos pareira</i>
Orchid	Orchidaceae	<i>Vanda tessellata</i>
Cotton-leaf physicnut	Euphorbiceae	<i>Jatropha gossypifolia</i>

Table 3. Continued ...

Flora recorded in Sacred Groves		
Common name	Family	Scientific name
Honeysuckle mistletoe	Loranthaceae	<i>Dendrophthoe falcata</i>
Guava	Myrtaceae	<i>Psidium guajava</i>
Panikucha	Vitaceae	<i>Ampelocissus latifolia</i>
Astibhanga	Vitaceae	<i>Cissus quadrangularis</i>
Fauna recorded in Sacred Groves		
Birds		
Bank Myna	Sturdinae	<i>Acridotheres ginginianus</i>
Pied Myna	Sturdinae	<i>Gracupica contra</i>
Indian Roller	Coraciidae	<i>Coracias benghalensis</i>
Spotted Dove	Columbidae	<i>Spilopelia chinensis</i>
Alexandrine parakeet	Psittaculidae	<i>Psittacula eupatria</i>
Greater coucal	Cuculidae	<i>Centropus sinensis</i>
Indian Koel	Cuculidae	<i>Eudynamis scolopaceus</i>
House Crow	Corvidae	<i>Corvus splendens</i>
Rufous treepie	Corvidae	<i>Dendrocitta vagabunda</i>
White breasted kingfisher	Alcedinidae	<i>Halcyon smyrnensis</i>
House sparrow	Passeridae	<i>Passer domesticus</i>
Little egret	Ardeidae	<i>Egretta garzetta</i>
Cattle egret	Ardeidae	<i>Bubulcus ibis</i>
Red-vented bulbul	Pycnonotidae	<i>Pycnonotus cafer</i>
Red-whiskered Bulbul	Pycnonotidae	<i>Pycnonotus jocosus</i>
Indian robin	Muscicapidae	<i>Copsychus fulicatus</i>
Purple-rumped sunbird	Nectariniidae	<i>Leptocoma zeylonica</i>
Crested serpent eagle	Accipitridae	<i>Spilornis cheela</i>
Black winged kite	Accipitridae	<i>Elanus caeruleus</i>
Mammals		
Barking Deer	Cervidae	<i>Muntiacus muntjak</i>
Wild boar	Suidae	<i>Sus scrofa</i>
Indian Hare	Leporidae	<i>Lepus nigricollis</i>
Sloth Bear	Ursidae	<i>Melursus ursinus</i>
Indian Flying Fox	Pteropodidae	<i>Pteropus giganteus</i>
Indian pipistrelle	Vespertilionidae	<i>Pipistrellus coromandra</i>
Asian House shrew	Soricidae	<i>Suncus murinus</i>
3-striped squirrel (Indian palm squirrel)	Sciuridae	<i>Funambulus palmarum</i>
Reptiles & Amphibians		
Indian Garden Lizard	Agamidae	<i>Calotes versicolor</i>
Indian Rock agama	Agamidae	<i>Psammophilus dorsalis</i>
Indian Rat snake	Colubridae	<i>Ptyas mucosa</i>
Common Cat snake	Colubridae	<i>Boiga trigonata</i> (Schneider, 1802)
Asian common-toad	Bufonidae	<i>Duttaphrynus melanostictus</i>
Golden skink	Scincidae	<i>Eutropis carinata</i>
Butterfly		
Plain Tiger butterfly	Nymphalidae	<i>Danaus chrysippus</i>
Common emigrant	Pieridae	<i>Catopsilia Pomona</i>
Plains Cupid	Lycaenidae	<i>Luthrodes pandava</i>
Lime butterfly	Papilionidae	<i>Papilio demoleus</i>
Spot swordtail butterfly	Papilionidae	<i>Graphium nomius</i>
Tawny coster	Nymphalidae	<i>Acraea terpsicore</i>
Common rose	Papilionidae	<i>Pachliopta aristolochiae</i>
Grey count	Nymphalidae	<i>Tanaecia lepidea</i>

Table 3. Continued ...

Fauna recorded in Sacred Groves		
Common name	Family	Scientific name
Common Sailor	Nymphalidae	<i>Neptis hylas</i>
Yellow pansy	Nymphalidae	<i>Junonia hierta</i>
Lemon pansy	Nymphalidae	<i>Junonia lemonias</i>
Grey pansy	Nymphalidae	<i>Junonia atlites</i>
Blue pansy	Nymphalidae	<i>Junonia orithya</i>
Bush Brown	Nymphalidae	<i>Mycalesis perseus</i>
Common fourring	Nymphalidae	<i>Ypthima huebneri</i>
Red pierrot	Lycaenidae	<i>Talicauda nyseus</i>
Common pierrot	Lycaenidae	<i>Castalius rosimon</i>

ceremonies and temple rituals. The collection and removal of any material from the sacred groves was strictly prohibited (Personal view).

Conclusion

It is very important to uphold traditions and beliefs in order to protect and conserve these unique forest patches which represent the relict vegetation of the concerned area. These forest patches are no longer free from anthropogenic pressures. The disappearance and/or degradation of sacred groves not only symbolize the loss of the rich relict flora and fauna but also its rich tapestry of culture associated with the groves. Management of sacred groves and sacred sites through the traditional local system is now being challenged by a number of economic and social issues and thus the traditional methods are rendered less effective. This needs external intervention taking the local people into confidence. Important sacred groves should be brought under the 'Protected area Network' to ensure their proper conservation. Ecological services rendered by sacred groves need to be highlighted and people should realize that the conservation of groves is crucial for their sustenance.

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Conflict of Authors

Authors declare that none of them have a conflict of interest.

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