

ROLE OF A SACRED GROVE IN CONSERVATION OF PLANTS

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Introduction

India is a land of diverse natural resources. It is also a country with the strongest traditions of nature conservation anywhere in the world. Since time immemorial, conservation of natural resources has been an integral aspect of many indigenous communities all over the world in general and India in particular. It is true that India has suffered an almost unabated devastation of its natural biological heritage, and much of what remains has been preserved through the ages because of a host of conservation-oriented socio-cultural and religious traditions. One such significant tradition of nature conservation is that of dedicating patches of forests or groves to some deities and spirits by the local people, both tribals and non-tribals. Such forest pockets, referred to as sacred groves, are more or less small to large chunk of traditionally preserved near-virgin forests maintained through people's participation. And folklores play a significant role in confirming the beliefs associated with the sacred groves. Though most of the indigenous people are illiterate, they have scrupulously nurtured their traditional customs, rituals, ceremonies and a way of forest life through folk beliefs with great fervour.

Although named differently in different states of India and managed by local people for various reasons, all sacred forests are islands of biodiversity protecting a good number of plant and animal species including some rare, threatened and endemic taxa. Sacred groves, in general, are repositories and nurseries of many of the local ayurvedic, unani, tribal and other folk medicines which are the original sources that slowly entered into the modern medicines after careful screening. Protections of a large number of medicinal plants in sacred forests of different parts of India are some of the well documented studies (Gadgil and Vartak, 1975, 1976; Bhandary and Chandrasekhar, 2003; Bhakat and Pandit, 2004, 2006; Dash, 2005; Khumbongmayum *et al.*, 2004; Pandit and Bhakat, 2007). With this realisation, the recent upsurge of interests in studying sacred groves *vis-a-vis* medicinal plants has not only established the topic as one of ecological significance, but this tradition of nature conservation based on socio-cultural grounds has got a newfound value as well. Keeping this in mind, this article provides a glimpse into the phenomenon of sacred groves highlighting how human values, norms, social practices and ethics help preserve plants in a tribal area of West Midnapore District in West Bengal.

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Study Area

The West Midnapore District is characterised by lateritic plains and hillocks clothed with mixed and dry-deciduous forests rich in plant diversity. Forest type is Northern Tropical Dry Deciduous Forests where Sal (*Shorea robusta*) is predominant species. Other species found are *Madhuca indica*, *Terminalia arjuna*, *T. bellerica*, *T. tomentosa*, *T. chebula*, *Diospyros melanoxylon*, *Soymida febrifuga*, *Schleichera oleosa*, *Anogeissus latifolia*, *Buchanania lanzan*, *Haldinia cordifolia*, *Pterocarpus marsupium*, etc. (Anon., 2001). Since the geographical location of this district comes under the middle tribal zone of India along with Jharkhand and Orissa, a large number of forest-fringe people, both tribals (like Bhumij, Kora, Lodha, Munda and Santhal etc.) and non-tribals not only depend on the surrounding plant resources for NTFPs including medicinal plants, but also protect a good number of plant species through village sacred groves. But unfortunately, with the escalating human population, over-exploitation and shrinkage of forest areas, the traditional species are gradually disappearing from the countryside. This coupled with the advent of "scientific forestry" having shifting emphasis on few commercially prized species, a host of traditionally important plants having good potential for commercial exploitation have failed to draw the attention of management plans. To enable adequate attention towards such aspects, there is an urgent need not only to document the rapidly vanishing species but also to find out the indigenous method of *in-situ* conservation through the network of sacred groves. In view of this, present study is an attempt to make an inventory of plant resources of Sitabala sacred grove.

The Sacred Grove

The present sacred grove, known popularly as 'Sitabala than' (named after its presiding folk deity 'Sitabala' or 'Sitala'), is located 7 km away from the West Midnapore District headquarters town of Midnapore along the East-West running Midnapore-Dherua road under Kotwali police station. The grove is spread over an area of 4 acres on a public land at the common outskirts of Kankabati and Lodhasai villages. This part-marshy part-terrestrial grove stands as an island of forest amidst the crop fields. The forest represents 800-year old relict vegetation consisting of evergreen and deciduous trees. In addition to daily worship offered to the deity of the grove, local people, both tribal and non-tribal of the surrounding villages visit the forest *en masse* during annual 'Makar Sankranti' (middle of January) when village fair is held for two days. Since the grove is abode of goddess, people neither cut any plant of the grove nor foul the serenity of the area, thus strictly adhering to the taboos and ethics. The folk belief goes that worshipping the deity gives people immunity against small pox and chicken pox, and heralds' well-being and prosperity of the villages.

Methodology

In the course of investigation for a period of one year (2006-2007), the area was frequently surveyed. Several attempts were made for collection/study in different seasons. Known plants were identified on the spot. For unknown plants, samples of plants with flowers and or fruits were collected. After collection, the specimens were processed, preserved and mounted on herbarium sheets following the standard and modern herbarium

techniques (Jain and Rao, 1977). The herbarium sheets have been identified by matching with correctly annotated materials available at the Vidyasagar University Herbarium. For identification purpose, including local names of plants, different relevant floras, monographs, revision works and other literature were consulted along with peoples' choice of vernacular names. The dried specimens are preserved in the Herbarium of Botany and Forestry Department, Vidyasagar University, Midnapore.

In the systematic enumeration of the taxa, the families and the species under them are arranged alphabetically. A general index of angiosperm taxa stating family, its number of genus/genera and species indicating habit has been prepared. An additional summarized table showing total number of families, genera and species (indicating herbs, shrubs, trees and climbers) under Dicots and Monocots has been prepared. Information about local medicinal plants were collected through literature (Pakrashi and Mukhopadhyay, 2001, 2004; Paria, 2005), and by interviewing and cross-interviewing the village people.

Results and Discussion

Floristic survey of the Sitabala sacred grove reveals a total of 80 species of angiosperms covering 72 genera under 45 families. While dicots represent 65 species belonging to 59 genera under 34 families, monocots cover 15 species representing 13 genera under 11 families (Tables 1 and 2). Among the total angiosperms, herbs, shrubs, trees and climbers are 42, 10, 16 and 12 species respectively (Table 3). Moreover, some of the taxa have medicinal values, and are used by the local people to

Table 1

Angiosperms of Sitabala sacred grove

Family and Species	Local Name	Habit
1	2	3

I. Dicots

Acanthaceae :

1. <i>Andrographis paniculata</i>	Kalmegh	H
2. <i>Barleria cristata</i>	Shetjhanti	S
3. <i>Ecobolium linneanum</i>	Neel Kantha	H
4. <i>Hygrophila auriculata</i>	Kulekhara	H
5. <i>Hygrophila polysperma</i>	Jalakhara	H

Alangiaceae :

1. <i>Alangium salvifolium</i>	Akarh	T
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Amaranthaceae :

1. <i>Achyranthes aspera</i>	Apang	H
2. <i>Alternanthera sessilis</i>	Sanchi	H
3. <i>Amaranthus spinosus</i>	Kantanate	H

Annonaceae :

1. <i>Annona reticulata</i>	Ban-ata	T
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Apiaceae :

1. <i>Centella asiatica</i>	Thankuni	H
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Apocynaceae :

1. <i>Rauwolfia tetraphylla</i>	Gandhanakuil	H
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Aristolochiaceae :

1. <i>Aristolochia indica</i>	Ishermul	C
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Asclepiadaceae :

1. <i>Gymnema sylvestre</i>	Gurmer	C
2. <i>Pergularia daemia</i>	Dudhilata	C

Asteraceae :

1. <i>Ageratum conyzoides</i>	Dochunti	H
2. <i>Eclipta prostrata</i>	Keshud	H
3. <i>Enhydra fluctuans</i>	Hinche	H

Contd...

1	2	3
Boraginaceae :		
1. <i>Heliotropium indicum</i>	Hatisur	H
Caesalpiniaceae :		
1. <i>Caesalpinia bonduc</i>	Natakaranj	S
2. <i>Cassia alata</i>	Dadmari	S
3. <i>Cassia occidentalis</i>	Kalkasunda	H
Capparidaceae :		
1. <i>Crataeva nurvala</i>	Barun	T
Celastraceae :		
1. <i>Celastrus paniculatus</i>	Jayotismoti	S
Combretaceae :		
1. <i>Combretum roxburghii</i>	Latajhanti	C
2. <i>Terminalia arjuna</i>	Arjun	T
3. <i>Terminalia tomentosa</i>	Asan	T
Convolvulaceae :		
1. <i>Ipomoea aquatica</i>	Kalmi shak	H
Euphorbiaceae :		
1. <i>Chrozophora plicata</i>	Khudi okra	H
2. <i>Croton bonplandianum</i>	Churchuri	H
3. <i>Jatropha gossypifolia</i>	Lal verenda	H
4. <i>Phyllanthus fraternus</i>	Bhui amla	H
5. <i>Phyllanthus simplex</i>	Tanda-meral	H
6. <i>Tragia involucrata</i>	Lata bichuti	C
Fabaceae :		
1. <i>Abrus precatorius</i>	Kunch	C
2. <i>Albizia lebbek</i>	Sirish	T
3. <i>Atylosia scarabaeoides</i>	Ban kurti	C
4. <i>Desmodium gangeticum</i>	Salpani	H
5. <i>Pongamia glabra</i>	Karanja	T
6. <i>Zornia diphylla</i>	Dopata	H
Flacourtiaceae :		
1. <i>Flacourtia indica</i>	Baichi	S
Lamiaceae :		
1. <i>Anisomeles ovata</i>	Gobura	H
2. <i>Leonurus sibiricus</i>	Raktadron	H
3. <i>Leonotis nepetaefolia</i>	Bhut bhairab	H

1	2	3
Loganiaceae :		
1. <i>Strychnos nux-vomica</i>	Kunchilla	T
Meliaceae :		
1. <i>Azadirachta indica</i>	Neem	T
2. <i>Melia azadirachta</i>	Ghoraneem	T
Menispermaceae :		
1. <i>Tinospora cordifolia</i>	Gulanca	C
Mimosaceae :		
1. <i>Adenantha pavonina</i>	Rakta kambal	T
2. <i>Mimosa pudica</i>	Lajjabati	H
Moraceae :		
1. <i>Ficus glomerata</i>	Jaggya dumur	T
2. <i>Ficus infectoria</i>	Pakur	T
3. <i>Streblus asper</i>	Sheora	T
Nyctaginaceae :		
1. <i>Boerhaavia diffusa</i>	Punarnava	H
Onagraceae :		
1. <i>Ludwigia parviflora</i>	Ban lavanga	H
Rhamnaceae :		
1. <i>Ziziphus oenoplea</i>	Ban kul	S
Rubiaceae :		
1. <i>Anthocephalus cadamba</i>	Kadam	T
Sapindaceae :		
1. <i>Cardiospermum halicacabum</i>	Shibjhul	C
Scrophulariaceae :		
1. <i>Bacopa monieri</i>	Brahmi	H
2. <i>Limnophila heterophylla</i>	Karpur	H
Solanaceae :		
1. <i>Solanum nigrum</i>	Kakmachi	H
2. <i>Solanum sisymbriifolium</i>	Sada kantikari	H

1	2	3
Tiliaceae :		
1. <i>Corchorus aestuans</i>	Ban pat	H
Ulmaceae :		
1. <i>Holoptelea integrifolia</i>	Challa	T
Verbenaceae :		
1. <i>Clerodendrum viscosum</i>	Ghentu	S
II. Monocots		
Agavaceae :		
1. <i>Agave sisalana</i>	Sisal	S
Amaryllidaceae :		
1. <i>Curculigo orchioides</i>	Talmuli	H
Araceae :		
1. <i>Alocasia indica</i>	Mankachu	H
Arecaceae :		
1. <i>Phoenix acaulis</i>	Ban khejur	S
Commelinaceae :		
1. <i>Commelina benghalensis</i>	Kanchira	H
Cyperaceae :		
1. <i>Cyperus rotundus</i>	Mutha	H
Dioscoreaceae :		
1. <i>Dioscorea alata</i>	Kham alu	C
2. <i>Dioscorea pentaphylla</i>	Kanta alu	C
3. <i>Dioscorea triphylla</i>	Churka alu	C
Hydrocharitaceae :		
1. <i>Hydrilla verticillata</i>	Jhanji	H
Orchidaceae :		
1. <i>Vanda tessellata</i>	Orchid	H
Pandanaceae :		
1. <i>Pandanus foetida</i>	Keya	S
Poaceae :		
1. <i>Chloris barbata</i>	Jhuntighas	H
2. <i>Chrysopogon aciculatus</i>	Chorkanta	H
3. <i>Eragrostis tenella</i>	Bandurba	H

(H-Herb, S-Shrub, T-Tree, C-Climber)

cure various ailments. These are : *Abrus precatorius*, *Achyranthes aspera*, *Andrographis paniculata*, *Aristolochia indica*, *Azadirachta indica*, *Bacopa monieri*, *Centella asiatica*, *Curculigo orchioides*, *Dioscorea alata*, *D. pentaphylla*, *D. triphylla*, *Eclipta prostrata*, *Gymnema sylvestre*, *Hygrophila auriculata*, *Phyllanthus fraternus*, *Rauwolfia tetraphylla*, *Strychnos nux-vomica*, *Terminalia arjuna* and *Tinospora cordifolia*.

Owing to continued protection offered on socio-cultural grounds, the sacred grove provides optimum conditions suitable for the growth of plants. As a result, some of the floristic elements attain maximum dimensions in terms of shape and size. A botanist is often confronted here with the unbelievable phenomenon of growth patterns of some plant associations. Some of the lofty trees showing grandeur and thus becoming a fascinating sight are *Anthocephalus cadamba* (DBH 3.5 m; Height 21.33 m; Age 80 yrs.), *Melia azadirachta* (DBH 1.25 m; Height 22.86 m; Age 50 yrs.) and *Terminalia arjuna* (DBH 6.5 m; Height 25.90 m; Age 350 yrs.). These trees along with the surrounding sylvan environs provide safe sanctuary for a good number of birds.

Apart from angiosperms, the grove also houses few fungi (*Ascobolus* sp., *Agaricus* sp. and *Polyporus* sp.) and pteridophytes (*Adiantum* sp., *Marsilea* sp. and *Pteris* sp.).

Conclusion

The sacred grove in essence represents the traditional Indian way of *in-situ* conservation of plant resources. It is also indicator of the rich vegetation that

Table 2

Angiospermic taxa of Sitabala sacred grove

Sl. No.	Family	Genus/ Genera	Species				Total
			Herb(s)	Shrub(s)	Tree(s)	Climber(s)	
1	2	3	4	5	6	7	8
I - Dicots							
1.	Acanthaceae	4	4	1	0	0	5
2.	Alangiaceae	1	0	0	1	0	1
3.	Amaranthaceae	3	3	0	0	0	3
4.	Annonaceae	1	0	0	1	0	1
5.	Apiaceae	1	1	0	0	0	1
6.	Apocynaceae	1	1	0	0	0	1
7.	Aristolochiaceae	1	0	0	0	1	1
8.	Asclepiadaceae	2	0	0	0	2	2
9.	Asteraceae	3	3	0	0	0	3
10.	Boraginaceae	1	1	0	0	0	1
11.	Caesalpiniaceae	2	1	2	0	0	3
12.	Capparidaceae	1	0	0	1	0	1
13.	Celastraceae	1	0	1	0	0	1
14.	Combretaceae	2	0	0	2	1	3
15.	Convolvulaceae	1	1	0	0	0	1
16.	Euphorbiaceae	5	5	0	0	1	6
17.	Fabaceae	6	2	0	2	2	6
18.	Flacourtiaceae	1	0	1	0	0	1
19.	Lamiaceae	3	3	0	0	0	3
20.	Loganiaceae	1	0	0	1	0	1
21.	Meliaceae	2	0	0	2	0	2
22.	Menispermaceae	1	0	0	0	1	1
23.	Mimosaceae	2	1	0	1	0	2
24.	Moraceae	2	0	0	3	0	3
25.	Nyctaginaceae	1	1	0	0	0	1
26.	Onagraceae	1	1	0	0	0	1
27.	Rhamnaceae	1	0	1	0	0	1
28.	Rubiaceae	1	0	0	1	0	1
29.	Sapindaceae	1	0	0	0	1	1
30.	Scrophulariaceae	2	2	0	0	0	2

Contd...

1	2	3	4	5	6	7	8
31.	Solanaceae	1	2	0	0	0	2
32.	Tiliaceae	1	1	0	0	0	1
33.	Ulmaceae	1	0	0	1	0	1
34.	Verbenaceae	1	0	1	0	0	1
II - Monocots							
1.	Agavaceae	1	0	1	0	0	1
2.	Amaryllidaceae	1	1	0	0	0	1
3.	Araceae	1	1	0	0	0	1
4.	Arecaceae	1	0	1	0	0	1
5.	Commelinaceae	1	1	0	0	0	1
6.	Cyperaceae	1	1	0	0	0	1
7.	Dioscoreaceae	1	0	0	0	3	3
8.	Hydrocharitaceae	1	1	0	0	0	1
9.	Orchidaceae	1	1	0	0	0	1
10.	Pandanaceae	1	0	1	0	0	1
11.	Poaceae	3	3	0	0	0	3

Table 3

Summary of different angiospermic taxa of Sitabala sacred grove

Group	Families	Genera	Species				Total
			Herbs	Shrubs	Trees	Climbers	
Dicots	34	59	33	7	16	9	65
Monocots	11	13	9	3	0	3	15
Total	45	72	42	10	16	12	80

had existed here in the past. Furthermore, the grove acts as a social space where people not only exchange their cultural

identity but also find community solidarity. Therefore, this study calls for the continued protection of the sacred grove.

SUMMARY

Many traditional conservation ethics of people directly or indirectly protect forest patches by dedicating them to local deities. Such forest pockets, referred to as sacred groves, are more or less small to large chunk of traditionally maintained near-virgin forests protected on socio-cultural grounds. Named differently in different states of India, these groves are mainly

concentrated in tribal areas and are managed by local people for various purposes. Irrespective of their origin, size and management regimes, all sacred groves are islands of biodiversity protecting a host of plant and animal species including some rare and threatened taxa. With this background, this paper attempts to highlight the role played by a 4-acre sacred grove (popularly known as 'Sitabala than') of West Midnapore District in West Bengal towards conservation of plant diversity. The study records 80 species of angiosperms covering 42, 10, 16 and 12 species of herbs, shrubs, trees and climbers respectively. Moreover, the grove supports few locally useful medicinal plants. Owing to protection offered on socio-religious grounds, the sacred grove provides optimum conditions congenial for the growth of plants. As a result, some of the trees attain maximum dimensions in terms of size and growth patterns. Therefore, there is an urgent need not only to protect the sacred forest, but also to revive and reinvent such traditional way of nature conservation.

Key words : Sacred grove, Conservation, Sitabala than, West Midnapore, West Bengal.

पेड़-पौधों के संरक्षण में पावन निकुंजों की भूमिका

आर०के० भक्त, यू०के० सेन व पी०के० पण्डित

सारांश

जनता की अनेक पारम्परिक संरक्षण नीतिप्रणालियां वन के टुकड़ों को स्थानीय देवताओं को समर्पित करके प्रत्यक्षतः या परोक्षतः उनकी रक्षा करती हैं। वनों के ऐसे टुकड़े, जिन्हें पावन निकुंज कहा जाता है लगभग छोटे या बड़े, समाज-सांस्कृतिक कारणों से सुरक्षित बनाकर रखे हुए पारम्परिक लगभग अक्षुण्ण वन ही हैं। भारत के विभिन्न राज्यों में इनके भिन्न-भिन्न नाम प्रचलित हैं, यद्यपि ये पावन निकुंज प्रधानतः आदिवासी क्षेत्रों में ही केन्द्रित हैं और स्थानीय लोग बाग ही विभिन्न प्रयोजनों के लिए इनका रखरखाव करते हैं। इनके उद्गम, आकार और प्रबन्धन रीतियों पर ध्यान न देते हुए कहे तो सभी पावन निकुंज जैवविविधता के द्वीप ही हैं जिनमें बहुतसारी पादप और प्राणी जातियों को सुरक्षित किया हुआ है जिनमें कितनी ही दुर्लभ और संकटापन्न जातियों भी सम्मिलित हैं। इस पृष्ठभूमि में इस अभिपत्र में पश्चिम बंगाल राज्य के पश्चिमी मिदनापुर जिले के 4 एकड़ क्षेत्रफल वाले पावन निकुंज की (स्थानीय लोकप्रचलित नाम सीताबाला थान) पादप विविधता संरक्षण में निबाही जा रही भूमिका पर प्रकाश डालने का प्रयास किया गया है। इस अध्ययन में संवृतबीजों की 80 जातियां अभिलिखित हुई हैं जिनमें शाकों, क्षुपों, वृक्षों और आरोहियों की क्रमशः 42, 10, 16 और 12 जातियां आई हैं। इनके अलावा, इस निकुंज में कुछ उपयोगी औषध पादप भी उग रहे हैं। समाज-धार्मिक कारणों से दी जा रही सुरक्षा के कारण इस पावन निकुंज में पेड़-पौधों की बढ़वार के लिए हितकारी इष्टतम दशाएं उपलब्ध हो रही हैं। फलतः कुछ वृक्ष तो आकार और बढ़वार की दृष्टि से अधिकतम आयाम प्राप्त कर चुके हैं। इसलिए, प्रकृति संरक्षण करने के लिए ऐसे पारम्परिक तरीकों को पुनः प्रचलित कराने और खोज निकालने को भी इन पावन निकुंजों को सुरक्षित बनाए रखने के साथ साथ, तत्काल करने की आवश्यकता है।

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