



Original Article

Sacred groves of Bishnupur, Joypur and Patrasayer blocks of Bankura district, West Bengal and their current status

Bulganin Mitra*¹

Priyanka Das¹

Arna Mazumder¹

Intiaz Imam²

¹ Zoological Survey of India, Prani Vigyan Bhawan, M-Block, New Alipore, Kolkata-700053, West Bengal

² Zoological Survey of India, North Eastern Regional Centre, Fruit garden, Risa Colony, Shillong- 793003, Meghalaya

Corresponding Author:

bulganinmitra@gmail.com*

ABSTRACT

Sacred groves (or SGs) are distinct patches of vegetation (ranging in size from a small cluster of a few trees to a large forest stand spanning several hundred acres) which are consecrated in the name of local deities or ancestral spirits. In this present communication, floral diversity in 43 SGs, ranging from 100 Sq m to 1400 Sq m in area of Bishnupur (26), Joypur (7) and Patrasayer (10) blocks of Bankura district of the state West Bengal is documented where 65 economically important plant species are recorded from. Among these 65 identified trees, 31 are important for medicinal value, 10 plants produce edible products, 15 plants have timber value, 6 plant species are ornamental, whereas, 4 plant species are worshipped as sacred trees. In these 43 SGs it is found that 26 plant species are having non timber product (NTP) value. In Bishnupur block, 2 places are sankritized by the replacement of folk deities with Hindu Gods or Goddesses, and temples seizing the place of plant growth. Natural growths of these traditional conserved lands are therefore in peril.

KEYWORDS: Bishnupur, Joypur, Patrasayer, Sacred Groves, Floral diversity, Conservation.

INTRODUCTION

Sacred groves (SGs) are segments of landscape containing vegetation and other forms of life and geographical features that are delimited and protected by human societies under the belief that to keep them in a relatively undisturbed state is an expression of important relationship to the divine or to nature (Hughes and Chandran, 1998). Due to the long term protection, those trees or groves are holding a number of ecosystems and conserving diversities of organisms.

In West Bengal, the pioneer work on subdivision of Bankura district in West Bengal was made by (Deb and Malhotra, 1997, 2001). Thereafter, work followed by (Bhakat and Pandit, 2004; Spadoni and Deb, 2005; Deb, 2007). Among 22 blocks of Bankura district in

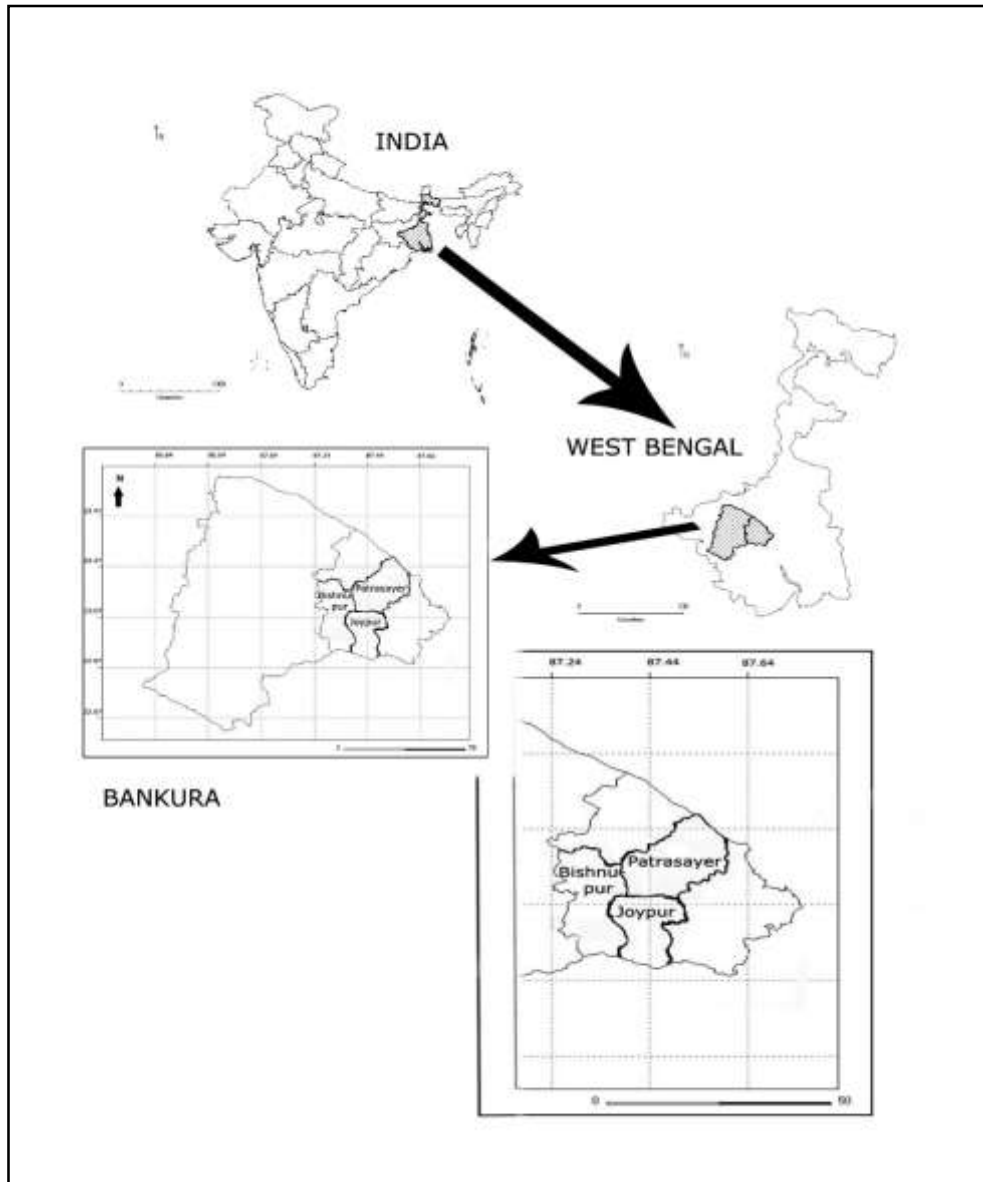
West Bengal, 31 sacred groves of Sonamukhi block were documented by (Mitra, 2014). A total of 52 species of insects and 58 species of plants have been recorded from these sacred groves. Afterwards, Mitra *et al.* (2015) documented 17 sacred groves from Barjora (7), Saltora (7) and Chhatna (3) blocks of Bankura district.

Present communication reports 43 sacred groves from Bishnupur (26), Joypur (7) and Patrasayer (10) blocks. All the SGs comprise diversified plant species. Altogether 65 plant species were found in these sacred groves (Table 4).

MATERIALS AND METHODS

Bankura is one of the semi-arid, tribal district of West Bengal is located in the western part

of the State and lying in between the latitude $22^{\circ} 38'$ and $23^{\circ} 38'$ north and between $86^{\circ} 36'$ and $87^{\circ} 46'$ of east longitude (Map 1)



Map 1: Map showing the position of Bishnupur, Patrasayer and Joypur blocks in Bankura district

RESULTS

Present communication reports 43 sacred groves from the three blocks of Bankura district. These sacred patches of Bishnupur, Joypur and Patrasayer blocks of Bankura are

presently conserving 65 economically important plant species. Among these, 47.70% are important for medicinal value, 13.85% plants important for edible purposes, 23.08% plants have timber value, 9.23% plant species

are ornamental, whereas, 6.15% plant species are worshipped as sacred trees. Moreover, 40%

plants are having NTP value (Fig 1).

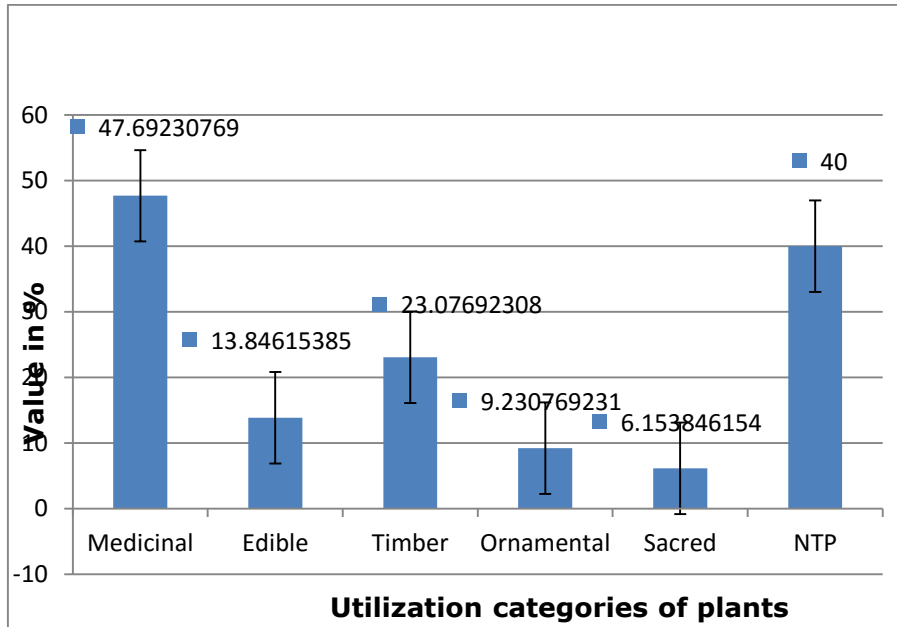


Fig 1: Evaluation plants on their usage (%-wise)

The block Bishnupur is located in between 22°5' N to 23°2'N latitude 87°14'E to 87°5'E longitude. Altogether, 26 sacred groves are reported from this block. All these SGs of this block comprise minimum 150 Sq m of area to maximum 1400 Sq m. The highest number of floral diversity (13 plant species) is recorded from Bhagabandh-2 (Table 1). Among the 65

species of plants reported from these three blocks, Bishnupur block is sharing 53 species of plants in 26 SGs. The SG of Kilasol village with 650-700 Sq m is only having single tree, otherwise the plant diversity of each SG is moderately diversified in Bishnupur block. Moreover, two SGs are under the process of sanskritisation (marked with ■).

Table 1: Sacred groves of Bishnupur Block

Sl. No.	Locality	Name of the Deity/Than	Geographical Position	Area (approx.) Sq m	No. of Plant species	Plants
1	Kilasol	Jaher Than	N 23°21'358" E 87°40'491"	650-700	1	<i>Shorea robusta</i>
2	Araldoba	Jaher Than	N 23°20'973" E 87°41'371"	700-750	7	<i>Bambusa arundinaceae</i> , <i>Bomba ceiba</i> , <i>Buchanania lanzan</i> , <i>Cleistanthus collinus</i> , <i>Lagerstroemia parviflora</i> , <i>Madhuca indica</i> , <i>Shorea robusta</i>
3	Kulusol & Molebagan	Jaher Than	N 23°21'610" E 87°42'258"	700-750	6	<i>Annona squamosa</i> , <i>Cassia fistula</i> , <i>Madhuca indica</i> , <i>Phoenix sylvestris</i> , <i>Shorea</i>

						<i>robusta, Terminalia arjuna</i>
4	Benachapra	Salui Than	N 23°34'751" E 87°23'502"	250-300	3	<i>Bambusa arundinaceae, Glycosmis pentaphylla, Shorea robusta</i>
5	Khurikasuli-1	Jaher Than	N 23°03'443" E 87°31'516"	200-250	3	<i>Ficus benghalensis, Litsea glutinosa, Phoenix sylvestris</i>
■6	Khurikasuli-2	Kali matar mandir	N 23°03'539" E 87°31'742"	150-200	6	<i>Artocarpus heterophyllus, Ficus religiosa, Mangifera indica, Phoenix sylvestris, Syzygium cumini, Ziziphus mauritiana</i>
7	Guyabari	Jaher Than	N 23°03'767" E 87°31'076"	150-200	5	<i>Albizia lebbeck, Azadirachta indica, Holoptelea integrifolia, Phoenix sylvestris, Terminalia chebula</i>
8	Pirragara	Salui Than	N 23°01'761" E 87°32'472"	450-500	9	<i>Albizia lebbeck, Alangium salvifolium, Azadirachta indica, Bombax ceiba, Ficus religiosa, Glycosmis pentaphylla, Holarrhena antidysenterica, Holoptelea integrifolia, Lagerstroemia parviflora</i>
9	Arjunpur-1	Buddha Purano Mandir	N 23°20'093" E 87°29'340"	1350-1400	7	<i>Bambusa arundinaceae, Borassus flabellifer, Clerodendrum infortunatum, Glycosmis pentaphylla, Mangifera indica, Musa paradisiacal, Strychnos nuxvomica</i>
10	Arjunpur-2	Bhairav Than	N 23°20'093" E 87°29'340"	200-250	5	<i>Adina cordifolia, Alangium salvifolium, Glycosmis pentaphylla, Phoenix sylvestris, Tamarindus indica</i>
11	Arjunpur-3	Manasa Banpukur Sini	N 23°20'575" E 87°28'498"	350-400	5	<i>Aegle marmelos, Diospyros montana, Ficus benghalensis, Glycosmis pentaphylla, Naringi crenulata</i>
12	Balarampur	Jaher Than	N 23°20'562" E 87°27'553"	150-200	5	<i>Buchanania lanzan, Lagerstroemia parviflora,</i>

13	Bhagabandh-1	Chandi	N 23 ⁰ 21'684" E 87 ⁰ 28'342"	150-200	7	<i>Shorea robusta</i> , <i>Terminalia bellirica</i> , <i>Thevetia peruviana</i> <i>Annona squamosa</i> , <i>Acacia nilotica</i> , <i>Azadirachta indica</i> , <i>Bombax ceiba</i> , <i>Ficus religiosa</i> , <i>Strychnos nuxvomica</i> , <i>Ziziphus mauritiana</i>
14	Bhagabandh-2	Baghra Sini	N 23 ⁰ 22'110" E 87 ⁰ 28'482"	1000-1100	13	<i>Annona squamosa</i> , <i>Artocarpus heterophyllus</i> , <i>Bambusa arundinaceae</i> , <i>Bombax ceiba</i> , <i>Ficus benghalensis</i> , <i>Ficus hispida</i> , <i>Glycosmis pentaphylla</i> , <i>Ixora arborea</i> , <i>Mangifera indica</i> , <i>Phoenix sylvestris</i> , <i>Psidium guajava</i> , <i>Strychnos nuxvomica</i> , <i>Terminalia arjuna</i>
15	Bhagabandh-3	Bhairav Than	N 23 ⁰ 22'143" E 87 ⁰ 27'940"	250-300	11	<i>Aegle marmelos</i> , <i>Albizia procera</i> , <i>Annona squamosa</i> , <i>Azadirachta indica</i> , <i>Butea monosperma</i> , <i>Diospyros montana</i> , <i>Glycosmis pentaphylla</i> , <i>Limonia acidissima</i> , <i>Phoenix sylvestris</i> , <i>Strychnos nuxvomica</i> , <i>Spondias mombin</i>
16	Piyardoba	Jaher Than	N 22 ⁰ 94'441" E 87 ⁰ 32'379"	1050-1100	6	<i>Cassia fistula</i> , <i>Ficus benghalensis</i> , <i>Holarrhena antidysenterica</i> , <i>Madhuca indica</i> , <i>Shorea robusta</i> , <i>Terminalia bellirica</i>
■17	Bankadaha	Kali mandir	N 22 ⁰ 97'733" E 87 ⁰ 35'686"	150-200	3	<i>Alangium salvifolium</i> , <i>Ficus benghalensis</i> , <i>Tamarindus indica</i>
18	Chidrang	Jaher Than	N 22 ⁰ 97'332" E 87 ⁰ 34'120"	1300-1400	7	<i>Adina cordifolia</i> , <i>Alangium salvifolium</i> , <i>Diospyros exsculpta</i> , <i>Ficus benghalensis</i> , <i>Madhuca indica</i> , <i>Shorea robusta</i> , <i>Terminalia</i>

						<i>tomentosa</i>
19	Sitalpur	Bhairav Than	N 22°99'268" E 87°26'120"	200-300	4	<i>Adina cordifolia</i> , <i>Bambusa arundinaceae</i> , <i>Nerium indicum</i> , <i>Phoenix sylvestris</i>
20	Birshinghpur	Jaher Than	N 22°98'079" E 87°24'741"	700-800	4	<i>Acacia auriculiformis</i> , <i>Azadirachta indica</i> , <i>Ficus benghalensis</i> , <i>Phoenix sylvestris</i>
21	Dhadanga	Bhairav Than	N 22°01'299" E 87° 24'638"	350-400	3	<i>Acacia auriculiformis</i> , <i>Eucalyptus tereticornis</i> , <i>Shorea robusta</i>
22	Tantir Bandh	Jaher Than	N 22° 01'293" E 87° 22'338"	650-700	3	<i>Aegle marmelos</i> , <i>Acacia auriculiformis</i> , <i>Eucalyptus tereticornis</i>
23	Douni village	Bhairav Than	N 22° 99'485" E 87° 20'681"	350-400	4	<i>Azadirachta indica</i> , <i>Holoptelea integrifolia</i> , <i>Shorea robusta</i> , <i>Syzygium cumini</i>
24	Nohari	Salui Than	N 23°00'029" E 87°16'938"	150-200	7	<i>Borassus flabellifer</i> , <i>Ficus religiosa</i> , <i>Holoptelea integrifolia</i> , <i>Hibiscus rosasinensis</i> , <i>Madhuca indica</i> , <i>Phoenix sylvestris</i> , <i>Ziziphus mauritiana</i>
25	Dhangasole	Kurdi Than	N 23°00'664" E 87°17'688"	350-400	6	<i>Aegle marmelos</i> , <i>Glycosmis pentaphylla</i> , <i>Madhuca indica</i> , <i>Peltophorum pterocarpum</i> , <i>Terminalia arjuna</i> , <i>Tabernaemontana coronaria</i>
26	Ghugumora	Manosa Than	N 23°01'692" E 87°18'457"	150-200	6	<i>Alangium salvifolium</i> , <i>Azadirachta indica</i> , <i>Nerium indicum</i> , <i>Holoptelea integrifolia</i> , <i>Phoenix sylvestris</i> , <i>Opuntia dillenii</i>

Joypur is a community development block located at N 23°02'51", E 87°26'48" has an area of 262.74 Sq km. This is a Santhal tribes dominated block. All the SGs are ranging in between 150 Sq m to 1400 Sq m. Kenddanga SG is the smallest one with 150-200 Sq m area

and only two plant species. With twelve plant species, Dhirikutu is the most diversified SG of this block (Table 2). Among the 65 species of plants reported from these three blocks, Joypur block is sharing only 26 species of plants in 7 SGs (Table 2).



Table 2: Sacred groves of Joypur Block

Sl. No.	Locality	Name of the Deity/ Than	Geographical Position	Area (approx.) Sq m	No. of Plant species	Plants
1	Natungram	Jaher Than	N 23 ⁰ 06'513" E 87 ⁰ 32'929"	1300-1400	6	<i>Bombax ceiba</i> , <i>Bridelia retusa</i> , <i>Bambusa arundinaceae</i> , <i>Borassus flabellifer</i> , <i>Strychnos nuxvomica</i> , <i>Shorea robusta</i>
2	Murabari	Jaher Than	N 23 ⁰ 04'702" E 87 ⁰ 39'522"	500-600	9	<i>Artocarpus heterophyllus</i> , <i>Albizia lebbeck</i> , <i>Borassus flabellifer</i> , <i>Bambusa arundinaceae</i> , <i>Citrus medica</i> , <i>Phoenix sylvestris</i> , <i>Psidium guajava</i> , <i>Shorea robusta</i> , <i>Terminalia bellirica</i>
3	Madhavpur Village	Salui Than	N 23 ⁰ 08'153" E 87 ⁰ 37'755"	1350-1400	3	<i>Eucalyptus tereticornis</i> , <i>Shorea robusta</i> , <i>Ziziphus oenoplia</i>
4	Satpukur Talbandi	Salui Than	N 23 ⁰ 06'015" E 87 ⁰ 40'595"	500-600	4	<i>Diospyros montana</i> , <i>Ficus religiosa</i> , <i>Shorea robusta</i> , <i>Typhonium trilobatum</i>
5	Kenddanga	Mayer Than	N 22 ⁰ 98'477" E 87 ⁰ 45'607"	150-200	2	<i>Ficus benghalensis</i> , <i>Phoenix sylvestris</i>
6	Baliguma Village	Salui Than	N 22 ⁰ 94'218" E 87 ⁰ 42'490"	700-800	3	<i>Shorea robusta</i> , <i>Terminalia chebula</i> , <i>Terminalia bellirica</i>
7	Dhirikutu	Salui Than	N 22 ⁰ 96'344" E 87 ⁰ 44'979"	1000-1100	12	<i>Acacia auriculiformis</i> , <i>Alangium salvifolium</i> , <i>Azadirachta indica</i> , <i>Borassus flabellifer</i> , <i>Diospyros exsculpta</i> , <i>Ficus benghalensis</i> , <i>Glycosmis pentaphylla</i> , <i>Madhuca indica</i> , <i>Shorea robusta</i> , <i>Terminalia bellirica</i> , <i>Tectona grandis</i> , <i>Ziziphus oenoplia</i>

Patrasayer community development block has an area of 321.07 Sq km and located in

between N 23°13'00", E 87°31'00". Hindu God Lord Shiva is worshipped as Bhairav, other

local Santhal deities are also offered. Of all the SGs ranging in between 100 Sq m to 400 Sq m, Rajgarh SG is the smallest one with 100-150 Sq m area and only two plant species. With 9 plant species, Chandankeri (1) is the

most diversified SG of this block (Table 3). Among the 65 species of plants reported from these three blocks, Patrasayer block is sharing 28 species of plants (Table 3).

Table 3: Sacred groves of Patrasayer Block

Sl. No.	Locality	Name of the Deity/ Than	Geographical Position	Area (approx.) Sq m	No. of Plant species	Plants
1	Role nagar	Jaher Than	N 23 ⁰ 14'094", E 87 ⁰ 30'097"	330-400	6	<i>Adina cordifolia</i> , <i>Albizia lebbbeck</i> , <i>Dalbergia sissoo</i> , <i>Eucalyptus tereticornis</i> , <i>Ficus benghalensis</i> , <i>Gmelina arborea</i>
2	Chandankeri (1)	Jaher Than	N 23 ⁰ 12'679", E 87 ⁰ 29'172"	100-150	9	<i>Bauhinia variegata</i> , <i>Borassus flabellifer</i> , <i>Ficus hispida</i> , <i>Holarrhena antidysenterica</i> , <i>Mangifera indica</i> , <i>Neolamarckia cadamba</i> , <i>Phoenix sylvestris</i> , <i>Shorea robusta</i> , <i>Syzygium cumini</i>
3	Chandankeri (2)	Bhairav Than	N 23 ⁰ 12'679", E 87 ⁰ 29'172"	100-200	7	<i>Diospyros exsculpta</i> , <i>Ficus benghalensis</i> , <i>Glycosmis pentaphylla</i> , <i>Madhuca indica</i> , <i>Naringi crenulata</i> , <i>Syzygium cumini</i> , <i>Terminalia arjuna</i>
4	Balibandh	Jaher Than	N 23 ⁰ 13'010", E 87 ⁰ 24'419"	100-200	5	<i>Alstonia scholaris</i> , <i>Bambusa arundinaceae</i> , <i>Flacourtia indica</i> , <i>Phoenix sylvestris</i> , <i>Shorea robusta</i>
5	Rakhasol	Jaher Than	N 23 ⁰ 12'598", E 87 ⁰ 28.918	100-200	6	<i>Alstonia scholaris</i> , <i>Bambusa arundinaceae</i> , <i>Borassus flabellifer</i> , <i>Flacourtia indica</i> , <i>Phoenix sylvestris</i> , <i>Shorea robusta</i>
6	Gar Natun Gram	Salui Than	N 23 ⁰ 12'923", E 87 ⁰ 28'182"	250-300	5	<i>Albizia lebbbeck</i> , <i>Glycosmis pentaphylla</i> , <i>Madhuca indica</i> , <i>Naringi crenulata</i> , <i>Shorea robusta</i>
7	Rajgarh	Jaher Than	N 23 ⁰ 13'124", E 87 ⁰ 27'891"	100-150	2	<i>Borassus flabellifer</i> , <i>Shorea robusta</i>

8	Rajasol (1)	Jaher Than	N 23°12'643", E 87°26'603"	300-400	7	<i>Alangium salvifolium</i> , <i>Bambusa arundinaceae</i> , <i>Borassus flabellifer</i> , <i>Holarrhena</i> <i>antidysenterica</i> , <i>Glycosmis pentaphylla</i> , <i>Shorea robusta</i> , <i>Tamarindus indica</i>
9	Rajasol (2)	Bairav Than	N 23°12'642" E 87°26'602"	100-150	4	<i>Ficus religiosa</i> , <i>Phoenix</i> <i>sylvestris</i> , <i>Polyalthia</i> <i>longifolia</i> , <i>Naringi</i> <i>crenulata</i>
10	Bargasol	Jaher Than	N 23°12'731" E 87°25'989"	100-200	3	<i>Adina cordifolia</i> , <i>Bambusa arundinaceae</i> , <i>Shorea robusta</i>

Altogether, 65 species of plants under 33 families were reported from 43 sacred groves of three blocks in Bankura district (Table 4). *Shorea robusta* commonly known as Sal is the dominant species of Bankura district and also found in 22 SGs during this study, followed by *Phoenix sylvestris* (18), commonly known as Khejur. But 25 species like, *Acacia nilotica*, *Albizia procera*, *Bauhinia variegata*, *Bridelia retusa*, *Butea monosperma*, *Citrus medica*, *Cleistanthus collinus*, *Clerodendrum*

infortunatum, *Dalbergia sissoo*, *Gmelina arborea*, *Hibiscus rosasinensis*, *Ixora arborea*, *Limonia acidissima*, *Litsea glutinosa*, *Musa paradisiaca*, *Neolamarckia cadamba*, *Opuntia dillenii*, *Peltophorum pterocarpum*, *Polyalthia longifolia*, *Spondias mombin*, *Tabernaemontana coronaria*, *Tectona grandis*, *Terminalia tomentosa*, *Thevetia peruviana*, *Typhonium trilobatum* are reported from only single SG (Table 4).

Table 4: Plant species reported from SGs of Bishnupur subdivision and their economic value

Sl. No.	Scientific Name	Bengali vernacular Name	Family	Economic Value	Reported from SGs
1.	<i>Acacia nilotica</i> (Linn.) Willd. ex Del.	Babla	Mimosaceae	Timber value, shade tree	1
2.	<i>Acacia auriculiformis</i> A. Cunn.	Akasmani	Mimosaceae	Medicinal value/ timber value	4
3.	<i>Adina cordifolia</i> (Roxb.) Hk. f. ex Bran.	Chakolda/ Chakolta	Rubiaceae	Timber value and medicinal value	5
4.	<i>Aegle marmelos</i> (Linn.) Corr.	Bel	Rutaceae	Food value and medicinal value (NTP- fruit)	4
5.	<i>Alangium salvifolium</i> (Linn.)	Akor/ Ankar	Alangiaceae	Medicinal value	7

	f.) Wang.				
6.	<i>Albizia lebbek</i> (Linn.) Willd.	Siris	Mimosaceae	Medicinal value	5
7.	<i>Albizia procera</i> (Roxb.) Benth.	LalSiris	Mimosaceae	Medicinal value	1
8.	<i>Alstonia scholaris</i> (Linn.) R. Br.	Chatim	Apocynaceae	Medicinal value	2
9.	<i>Annona squamosa</i> Linn.	Ata	Annonaceae	Fruit is consumed for good taste (NTP- fruit)	4
10.	<i>Artocarpus heterophyllus</i> Lamk.	Kanthal	Moraceae	Fruit is edible and has good market value (NTP- fruit)	3
11.	<i>Azadirachta indica</i> A. Juss	Neem	Meliaceae	Medicinal value (NTP- Leaves, fruit, twig, bark)	8
12.	<i>Bambusa arundinaceae</i> (Retz.) Willd.	Bansh	Poaceae	Used for house hold works and paper industries	11
13.	<i>Bauhinia variegata</i> Linn.	Kanchan	Caesalpinaceae	Medicinal plant	1
14.	<i>Bombax ceiba</i> Linn.	Simul	Bombacaceae	Flower buds and fruits are edible. Medicinal value (NTP- Flower buds and fruits)	5
15.	<i>Borassus flabellifer</i> Linn.	Tal	Arecaceae	Edible fruits. Fresh sap of palm has stimulant and antiphlegmatic properties (NTP- fruit and leaves)	9
16.	<i>Bridelia retusa</i> Spreng.	Bhuas	Euphorbiaceae	Medicinal plant	1
17.	<i>Buchanania lanzan</i> Spreng.	Piyal	Anacardiaceae	Fruits are used as spice for cooking (NTP- fruits)	2
18.	<i>Butea monosperma</i> (Lamk.) Taub.	Palash	Papilionaceae	Fibre. Medicinal value	1
19.	<i>Cassia fistula</i> Linn.	Bandar lathi	Caesalpinaceae	Medicinal plant	2
20.	<i>Citrus medica</i> Linn.	Kagji lebu	Rutaceae	Fruit is rich in vitamin C (NTP- fruit)	1

21.	<i>Cleistanthus collinus</i> (Roxb.) Benth.	Parashi	Euphorbiaceae	Medicinal plant	1
22.	<i>Clerodendrum infortunatum</i> auct. Pl.	Ghetu	Verbenaceae	Medicinal plant	1
23.	<i>Dalbergia sissoo</i> Roxb. ex DC.	Sisu	Papilionaceae	Timber value	1
24.	<i>Diospyros exsculpta</i> Buch. Ham.	Kend	Ebenaceae	Timber value (NTP- leaves)	3
25.	<i>Diospyros montana</i> Roxb.	Haldi	Ebenaceae	Medicinal plant. Planted in the Hindu temples and shrines throughout the country	3
26.	<i>Eucalyptus tereticornis</i> Smith.	Eucalyptus	Myrtaceae	Eucalyptus oil is readily steam distilled from the leaves and can be used for cleaning and as an industrial solvent, as an antiseptic	4
27.	<i>Ficus benghalensis</i> Linn.	Bot	Moraceae	Shade tree and sacred tree. Medicinal value	11
28.	<i>Ficus hispida</i> Linn. f.	Dumur	Moraceae	Sacred trees, used in religious ceremonies	2
29.	<i>Ficus religiosa</i> Linn.	Aswatha	Moraceae	Sacred trees used in religious ceremonies. Medicinal value	6
30.	<i>Flacourtia indica</i> (Burm. f.) Merrill	Bainchi	Flacourtiaceae	Timber value	2
31.	<i>Glycosmis pentaphylla</i> auct. Pl.	Sheora	Rutaceae	Ornamental and timber value. Medicinal value	12
32.	<i>Gmelina arborea</i> Roxb.	Gamar	Lamiaceae	Timber value	1
33.	<i>Hibiscus rosasinensis</i> Linn.	Jaba	Malvaceae	Ornamental but having medicinal properties	1
34.	<i>Holarrhena antidysenterica</i>	Kurchi	Apocynaceae	Medicinal value	4

	(Heyna ex Roth) A. DC.				
35.	<i>Holoptelea integrifolia</i> (Roxb.) Planch	Challa	Ulmaceae	Timber value	5
36.	<i>Ixora arborea</i> Roxb. ex Smith	Lohajang	Rubiaceae	Timber value	1
37.	<i>Lagerstroemia parviflora</i> Roxb.	Shida	Lythraceae	Timber value	3
38.	<i>Limonia acidissima</i> Linn.	Kayet Bel	Rutaceae	Edible fruits and food value (NTP- fruit)	1
39.	<i>Litsea glutinosa</i> (Lour.) C.B. Rob.	Leda	Lauraceae	Timber value	1
40.	<i>Madhuca indica</i> Gmelin	Mohua	Sapotaceae	Medicinal value (NTP- fruit)	9
41.	<i>Mangifera indica</i> Linn.	Am	Anacardiaceae	Edible fruits and food value (NTP- fruit)	4
42.	<i>Musa paradisiaca</i> Linn.	Kola	Musaceae	Fruit is of high nutritive value (NTP- fruit and leaves)	1
43.	<i>Naringi crenulata</i> (Roxb.) Nicolson	Rani Kayet	Rutaceae	Edible fruits and food value (NTP- fruit)	4
44.	<i>Neolamarckia cadamba</i> (Roxb.) Bosser	Kadam	Rubiaceae	Has medicinal value in curing astringent, ulcer, digestive, diarrhoea, expectorant, fever, vomiting.	1
45.	<i>Nerium indicum</i> Mill. Gard.	Karabi	Apocynaceae	Ornamental plant	2
46.	<i>Opuntia dillenii</i> (Ker-Gawl.) L. Benson	Phanimonosa	Cataceae	Sacred tree	1
47.	<i>Peltophorum pterocarpum</i> (DC.) K. Heyne	Radhachura	Fabaceae	Ornamental tree	1
48.	<i>Phoenix sylvestris</i> (Linn.) Roxb.	Khejur	Arecaceae	Edible fruits and high food value (NTP- fruit and leaves)	17
49.	<i>Polyalthia longifolia</i> (Sonn.) Thw.	Debdaru	Annonaceae	Avenue plantation, used in Pencil and	1

				match box factories	
50.	<i>Psidium guajava</i> Linn.	Peyara	Myrtaceae	Edible fruits, leaves are used in folk medicine as a remedy for diarrhoea (NTP- fruit and leaves)	2
51.	<i>Shorea robusta</i> Gaertn. f.	Sal	Dipterocarpaceae	Timber value. It is used as an astringent in Ayurveda (NTP- leaves)	22
52.	<i>Spondias mombin</i> Linn.	Ban Amra	Anacardiaceae	The fruit is consumable (NTP- fruit).	1
53.	<i>Strychnos</i> <i>nuxvomica</i> Linn.	Kuchla	Loganiaceae	Used in homeopathy medicine (NTP)	5
54.	<i>Syzygium cumini</i> (Linn.) Skeels	Jam	Myrtaceae	Fruit is consumed (NTP- fruit)	4
55.	<i>Tabernaemontana</i> <i>coronaria</i> (Jacq.) Willd.	Tagar	Apocynaceae	Ornamental	1
56.	<i>Tamarindus</i> <i>indica</i> Linn.	Tentul	Caesalpiaceae	Edible fruit. Medicinal value (NTP- fruit)	3
57.	<i>Tectona grandis</i> Linn. f.	Shegun	Verbenaceae	Timber is highly valuable	1
58.	<i>Terminalia arjuna</i> (Roxb.) Wt. & Arn.	Arjun	Combretaceae	Medicinal value (NTP- bark)	4
59.	<i>Terminalia</i> <i>bellirica</i> (Gaertn.) Roxb.	Bahara	Combretaceae	Fruits are used for medicinal purpose (NTP- fruit)	5
60.	<i>Terminalia chebula</i> (Gaertn.) Retz.	Hartaki	Combretaceae	The bark and fruit is used for tanning and dying. Used as local medicine (NTP- fruit and bark)	2
61.	<i>Terminalia</i> <i>tomentosa</i> Wight & Arn.	Ason	Combretaceae	Timber value	1
62.	<i>Thevetia peruviana</i>	Kolke	Apocynaceae	Ornamental	1

(Pers.) K. Schum.					
63. <i>Typhonium trilobatum</i> (Linn.) Schott	Ghatkol	Araceae	Medicinal value, rhizome used in herbal medicine	1	
64. <i>Ziziphus oenoplia</i> (Linn.) Mill. Gard.	Siya Kul	Rhamnaceae	The berries are edible and the bark is used for tanning (NTP-fruit)	2	
65. <i>Ziziphus mauritiana</i> Lamk.	Kul	Rhamnaceae	Edible fruit, quite nutritious and rich in vitamin C (NTP- fruit)	3	

NTP- non-timber product

DISCUSSION

Bankura is a place of different culture and communities. This divergence is well reflected on the SGs of the three community development blocks, Bishnupur, Joypur and Patrasayer. From Bishnupur block 26 SGs are listed showing the possession of varied communities of Santhal, Hindu and Buddhists as well and the areas are strikingly large, where the count of plant species varied from 1 to 13. Joypur, mainly Santhal dominated area, recorded 7 SGs comprising huge land mass and the patches restoring 2 to 12 different plant species. Patrasayer documented 10 SGs of occupying comparatively small size of areas where 2 to 9 different species of plants are secured.

Removal of any living things from the SG is taboo, although dead logs, fruits, bark and leaves are sometimes removed from some SGs, they can be considered as non-timber products. The SGs are store house of vegetation, these 'botanical islands' preserve so many plant species embracing high timber value, economical importance and non-timber products.

From these 43 SGs it is found that 26 plant species having non-timber products (NTPs) that may be utilized by the inhabitant

communities. Among these *Azadirachta indica* whose leaves, fruit, twig, bark all are useful as products. *Diospyros exsculpta* and *Shorea robusta* produce leaves of larger size, and are used dried or non-dried. Bark shed by *Terminalia arjuna* has medicinal property. Other 16 are fruit bearing plants which are edible.

The *Shorea robusta* is the dominant species of these blocks of Bankura district and well conserved in the 22 SGs. Besides this, these 43 SGs are also conserving the 25 economically important plant species which are very poor in number in the district.

Sanskritization (or Hinduization) tends to replace the animistic spirits and deities with idols and the natural habitat with a built habitat as a place of worship. There are two groves in block Bishnupur where sanskritization has occurred (marked with ■) in the place for natural growth of the plant species. This erection of temples will ultimately lead to decline in vegetation count. A single plant is resident for many other autotrophs and heterotrophs, so, this biodiversity loss will be magnified if more number of trees is removed.

Sacred groves are traditional idea of conserving forest. Social anthropoid life began in forests and later on agriculture developed and advancement in living appeared. But this practice became religious may be for the sake of their benefit or conservation in broader aspect. Though, this practice is limited to few regions due to shortage of forest cover or declination of their protectors. So, this concept is a tool to restore and save the remnants of these age old patches for us and our future generations.

CONCLUSION

The assessment of diversity and preparation of the sacred grove inventories are considered a needful task now a day, due to the importance of sacred groves in the conservation planning.

REFERENCES

- Bhakat R. K.; Pandit P. K., (2004). An inventory of medicinal plants of some sacred groves of Purulia district, West Bengal. *Indian Forester*, **130** (1):37-43
- Basu, R., (2009). Biodiversity and Ethnobotany of Sacred Groves in Bankura District, West Bengal. *Indian Forester*, **135**(6): 765-778.
- Chakraborti, U.; Biswas, O.; Das, A.K.; Roy, S.; Das, P.; Mitra, B., (2016). Studies on sacred groves and sacred trees along the eastern bank of river Hoogly of north 24 Parganas, West Bengal. *Indian Forester*, **142**(2): 156-166.
- Deb, D. (2007) *Sacred Groves of West Bengal: A model of community forest management*. Ed: Dr. Oliver Springate-Baginski, Overseas Development Group, University of East Anglia, Norwich U.K. paper no:8, 1-45
- Deb, D.; Malhotra, K.C., (1997). Interface between biodiversity and tribal cultural heritage. *Journal of Human Ecology*, **8**: 157-163.
- Deb, D.; Malhotra, K.C., (2001). Conservation ethos in local traditions: the West Bengal heritage. *Society and Natural Resources (Philadelphia)*, **14**: 711-724.
- Deepa, M.R.; Dharmapal, S.; Udayan, P.S., (2016). Rare, endemic and medicinal plants of selected sacred groves in Chavakkad, Thrissur district, Kerala. *Asian Journal of Biological and Life Sciences*, **5**(1) : 78-87.
- Hughes, D.J.; Chandran, S.M.D., (1998). Sacred grove around the earth: An Overview, in: Ramakrishnan, P.S.; Saxena, K.G; Chandrashekara, U.M., (Eds.), *Conserving the Sacred for Biodiversity Management*. UNESCO and Oxford-IBH Publishing, New Delhi.
- Mitra, B., (2014). Insect faunal diversity in the sacred groves of Sonamukhi Block, Bankura district, West Bengal, India.

Therefore, this communication has got importance towards the conservation planning of the sacred groves in Bankura district of West Bengal. This study also focus the current status of the SGs of semi-arid district of West Bengal where sanskritization has already took place.

ACKNOWLEDGEMENT

The authors wish to express their gratitude to Dr. Kailash Chandra, Director, Zoological Survey of India, Kolkata for constant encouragement in the pursuit of the work. The authors are deeply indebted to Shri K.C. Gopi, Scientist-F and in-charge of Entomology division (A & B) for kindly going through the manuscript and making useful suggestions.

- J. Environ. And Sociobiol*, **11**(1): 79-88.
- Mitra, B.; Das, P.; Ghosh, S.; Mishra, P., (2015). Sacred groves of Barjora, Chhatna and Saltora blocks of Bankura district, West Bengal. *Indian Forester*, **141**(8):861-865.
- Shinde, V.V.; Dhale, D.A.; Gaykar, B.M., (2011). Sacred Groves: Traditional way of conserving plant diversity. *Journal of Ecobiotechnology*, **3**(9): 23-25.
- Spadoni, M.; Deb, D. (2005). "Ethnoecology of sacred groves in West Bengal, India." In: *Himalaya: Environment, Culture and Sustainable Development*. Pp. 143-160. Rome.

Journal of Biodiversity and Ecological Sciences (JBES®)

Publish Your Work in This Journal

