

# Conservation Of Biodiversity And Wetlands As A Sacred And Religious Custom In Puruliya District, West Bengal

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**Abstract:** *The present paper deals with the conservation of biodiversity in Babirbundh, Dewanbundh and Kalidaha Jore in the Block of Kashipur in Puruliya District. From three selected wetlands viz. Babirbundh, Dewanbundh and Kalidaha Jore 36 species representing 11 genera of 14 species of 10 dicotyledonous families and 17 genera of 21 species of 10 monocotyledonous families and one genera of one species of one Pteridophyte family have been identified. Puruliya District have a large scope for biodiversity conservation as a sacred and religious value due to custom prevalent in tribal group in the locality in this district.*

**Keywords:** *Conservation, Biodiversity, Babirbundh, Sacred wetland, Dewanbundh, Kalidaha jore, Religious value, Puruliya District.*

## I. INTRODUCTION

Aquatic biodiversity is dependent on hydrological regime; geological conditions and efforts are being made to conserve the biodiversity found in wetlands, streams and rivers. The goal of this irreplaceable biodiversity is to minimize its loss through sustainable management and conservation practices. The first step in conservation of biodiversity is to assess the diversity of natural resources present and identify those, which are important and most irreplaceable (Groombridge and Jenkin, 1998).

Wetlands are considered life support system and provide a wide range of services critical to human development and well-being. They help recharge aquifers, support local food production, function as habitat for indigenous and migratory birds, are effective in food and erosion control besides being a major source of national and international eco-tourism.

The wetlands considered in this work need rational utilization, periodic monitoring, management and protection for conservation before it is too late, since they collectively constitute a natural resource of great importance. This documentary work may prove its worth in laying the foundation of a wetland based multidimensional programme

for health, economy and environment in Puruliya District, West Bengal.

## II. MATERIALS AND METHODS

Puruliya district is located between 23° 19' 50.23" North latitudes and 86° 21' 46.91 "East longitudes (Figure 1). The total area of the district is 6259.00 sq Km, which has hardly any natural boundary demarcated by streams or hills. Puruliya has its boundaries on the east with the Midnapur and Bankura district of West Bengal. On the north with the Burdwan district of West Bengal and Dhanbad district of Bihar, on the north west, and south west with the Hazaribag, Ranchi and Singhbhum district of Jharkhand. (Anon,1985)



Figure 1: Location Map Of Puruliya District (Not To Scale)

The climate of the district is of tropical monsoon type with three seasons viz. premonsoon, monsoon and post monsoon. The soil is of lateritic type and the temperature ranges from 26-44°C during summer and from 11-24°C during winter. The rainfall occurs mainly during the months of June, July and August. Maximum rainfall for the district so far recorded is in the month of July although sometimes it is less than the normal expected rainfall. On an average the values are much closed to the normal during these months.

### III. STUDY SITES

The general characteristics of study sites are stated in Table 1.

Name of the Wetlands	Mouza	Parameters									
		L	Sw	Op	Size (acres)	Wr	O	Up	Pmf	Pd	Ad
1. Babirbundh	Babiddi	R. L.	R. W.	G.W.	18	P.	Mm.	S. W.	A. F.	P. M.	A. Ri
2. Dewanbundh	Kalidaha	R. L.	R. W.	P.W.	3	P.	Mm.	I.	A. F.	P. M.	A. Po.
3. Kalidaha (jore)	Kalidaha	R. L.	Ri. W.	G.W.	9	P.	N.	N. S.	A. F.	P. R.	A. Mo.

**LEGEND OF ABBREVIATIONS USED:** L=location; Sw.=source of water; Op=ownership pattern; Wr=water regime; O=origin; Up=use pattern; Pmf=pollution mainly from; Pd=plant diversity; Ad=animal diversity.

**ABBREVIATIONS:** R. L.=Rural location; R.W.=Rain water, Ri. W.=River water; G.W.= Government wetland, P.W.=Private wetland; P=perennial; Mm.=Man-made, N.=Natural; S.W. = Sacred wetland, I=Irrigation, N. S.=No specific use (i.e. various types of use including pisciculture)- ; A. F.=Agricultural field; P.M.=Plant moderate, P. R. =Plant rich; A. Ri.=Animal rich, A. P.=Animal poor, A. Mo.=Animal moderate.

Table 1: General Characteristics Of Wetlands In Puruliya District, West Bengal

Babirbundh is located at 86° 75' 0" E longitude and 23° 37' 0" N latitude in Babiddi mouza in the Kashipur Block (Figure 2). The name of this wetland is based on Babri Devi who was the wife of the king who had created this wetland for the welfare of the local people. On the north bank of the wetland, there is a small temple dedicated to God Shiva with regular worship (Figure 3). There was a system that after bathing on the wetland and offering worship in a temple

dedicated to Shiva the devotees pass over through a narrow way (Magraduara) located on the north bank of the wetland. This worship is still in vogue on every Sunday. This wetland is also used for pisciculture, irrigation and domestic purposes.



Figure 2: A View Of Babirbundh



Figure 3: Shiva Temple Is Located At The North Bank Of Babirbundh

Babirbundh was established as a sacred bundh in the locality because, there was also a custom prevalent in tribal group that the abdomen of a new born child if dipped in the water of wetland immediately after cutting the umbilical cord, the baby is likely to be beautiful and healthy. Women from the localities of Chhatna, Jhantipahari, Sirjam, Kapista, Majramura, Sutaboy, Roytora, Sihika, babiddi, Talajuri, Gourangadi etc come to this wetland for worship.

Dewanbundh lies in Siyada which is located beside Ahalya Road near Kalidaha jore. The wetland is located at 86° 75'E longitude and 23° 37'N latitude which is used only for irrigation purpose. This wetland is named after the 'Dewan' who was officially given the responsibility to look after the locality and this waterbody was dug in the agricultural field under his ownership.

Kalidaha jore, located at 86°75'E longitude and 23°37'N latitude in Kalidaha in Kashipur Block, was constructed from Kankrijura jore which was situated between Lahat under the Anchal of Kalidaha and Metyalsahar under the anchal of Gourangadihi. It is a preserved wetland by the Government where hunting of migratory birds are totally prohibited.

A hermitage was established by

Satchidananda Bramhachari on a barren land surrounding the cultivated field beside the north bank of the wetland where a fair is organized every year for 3-4 days subsequent to Pous sankranti. Water of this perennial wetland is used for domestic

purposes, irrigation, fishing, washing of vehicles. A part of the wetland is directly used for cultivation of rabi crops during winter.

#### IV. RESULTS

From Babirbundh, Dewanbundh and Kalidaha Jore 35 species of aquatic angiosperms and one species of Pteridophyte have been investigated which were enumerated in Table 2. Those macrophytes have tremendous scope for biodiversity conservation as a sacred and religious ground to the society in this district due to belief of tribal group. Several tribal communities like Santhal, Mahalis, Kora, Murmu, Mandi, Majhi, Saren and Munda resides in the adjoining villages like Jagannathdih, Pathuriyagora, Sija, Murlu, Karangberiya, Goyalberiya, Geolgoriya, Kelahi, Bhatuikend, Kapista, Majramura, Sihika, Babiddi, Gourangadihi etc surrounding these wetlands.

Sl. No.	Name of the plants	Family	Dates of field visit	Field Number	Status	Remarks
1	<i>Aeschynomene indica</i> L.	Papilionaceae	05.11.15 , 28.10.02	MM-602, MM-390	Common	Emergent
2	<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	Amaranthaceae	05.11.15	MM-614,	Less common	Emergent
3	<i>Blyxa japonica</i> (Miquel) Maximovicz ex Ascherson et Gurke	Hydrocharitaceae	05.11.15 , 28.10.02	MM-592, MM-257	Common	Emergent
4	<i>Ceratophyllum demersum</i> L.	Ceratophyllaceae	05.11.15 , 10.08.03	MM-617, MM-314	abundant	Submerged
5	<i>Cyperus haspan</i> L.	Cyperaceae	10.10.07	MM -486	Rare	Emergent
6	<i>Cyperus iria</i> L.	Cyperaceae	10.10.07	MM -484	Rare	Emergent
7	<i>Drosera burmanni</i> Vahl.	Droseraceae	25.12.04	MM-461	Rare	Emergent
8	<i>Drosera indica</i> L.	Droseraceae	24.10.08	MM-574, MM-575	Rare	Emergent
9	<i>Echinochloa crus-galli</i> (L.) P. Beauv.	Poaceae	05.11.15 , 10.08.03	MM-615, MM-286	Common	Emergent
10	<i>Eclipta prostrata</i> (L.) L.	Asteraceae	05.11.15 , 07.11.15	MM-595 MM-683	Common	Emergent
11	<i>Eichhornia crassipes</i> (Mart.) Solms in DC.	Pontederiaceae	20.07.08	MM -540	abundant	Free floating
12	<i>Eleocharis atropurpurea</i> (Retz.) Presl.	Cyperaceae	05.11.15 , 10.08.03	MM-616, MM -308	Common	Emergent
13	<i>Eleocharis retroflexa</i> (Poir.) Urb.	Cyperaceae	05.11.15 , 07.11.15	MM-586 MM-682	Rare	Emergent
14	<i>Eriocaulon quincongular</i> L.	Eriocaulaceae	07.11.15 , 20.02.05	MM-681, MM-463	Common	Emergent
15	<i>Hydrilla verticillata</i> (L. f.) Royle	Hydrocharitaceae	07.11.15 , 20.07.08	MM-673, MM-535, MM -538	Abundant	Submerged

16	<i>Ipomoea fistulosa</i> Mart. Ex Choisy in Dec.	Convolvulaceae	05.11.15 , 31.08.08	MM-607, MM-583	Common	Emergent
17	<i>Isoetes coromaandeliana</i> L. f.	Isoetaceae	10.10.07	MM-483, MM-485	Rare	Submerged
18	<i>Kyllinga brevifolia</i> Rottboll.	Cyperaceae	28.10.02	MM -254	Common	Emergent
19	<i>Limnophila erecta</i> Benth.	Scrophulariaceae	28.10.02	MM-258	Abundant	Submerged
20	<i>Limnophila heterophylla</i> (Roxb.) Benth.	Scrophulariaceae	05.11.15 , 10.08.03	05.11.15, MM-311	Abundant	Emergent
21	<i>Limnophila repens</i> (Benth.) Benth.	Scrophulariaceae	05.11.15 , 09.08.03	MM-611, MM-299	Common	Emergent
22	<i>Mikania micrantha</i> Kunth in H. B. & K. Nov.	Asteraceae	28.10.02	MM-264	Rare	Twining
23	<i>Monochoria vaginalis</i> (Burm. f.) C. Presl.	Pontederiaceae	05.11.15 ,	MM-609	Less common	Emergent
24	<i>Najas malesiana de wilde</i>	Najadaceae	28.10.02	MM -256	Rare	Submerged
25	<i>Nechamandra alternifolia</i> (Roxb. ex wight) Thwaites	Hydrocharitaceae	28.10.02	MM -259, MM -260	Common	Submerged
26	<i>Nymphaea pubescens</i> Willd.	Nymphaeaceae	05.11.15 , 31.08.08	MM-605, MM-505	Common	Emergent
27	<i>Nymphoides hydrophylla</i> (Lour.) Kuntze.	Menyanthaceae	05.11.15 , 31.08.08	MM-603, MM-584	Abundant	Floating
28	<i>Potamogeton crispus</i> L.	Potamogetonaceae	05.11.15 20.07.08	MM-593, MM-519	Common	Submerged
29	<i>Sagittaria guyanensis</i> Humbolt	Alismaceae	05.11.15 , 10.08.03	MM-613, MM-313	Rare	Floating
30	<i>Sagittaria sagittifolia</i> L.	Alismaceae	05.11.15 , 10.08.03	MM-612, MM-315	Rare	Floating
31	<i>Schoenoplectus articulatus</i> (L.) Palla	Cyperaceae	05.11.15 , 07.11.15 , 08.10.07	MM-597, MM-674, MM-687,	Common	Emergent
32	<i>Schoenoplectus grossus</i> (L.f.) Palla	Cyperaceae	07.11.15 , 20.07.08	MM-675, MM -491	Common	Emergent
33	<i>Tonningia axillaris</i> (L.) O. Kuntze	Commelinaceae	28.10.02	MM-255, MM-263	Common	Submerged
34	<i>Typha domingensis</i> Pers.	Typhaceae	18.05.08	MM -480	Abundant	Emergent
35	<i>Utricularia bifida</i> L.	Lentibulariaceae	10.10.08	MM-494	Rare	Emergent
36	<i>Vallisneria spiralis</i> L.	Hydrocharitaceae	05.11.15 , 20.07.08 , 31.08.08	MM-590, MM-518, MM-585	Abundant	Submerged

Table 2: An Enumeration Of Macrophytes In Babirbundh, Dewanbundh And Kalidaha Jore In Puruliya District, West Bengal

## V. DISCUSSION

Out of 36 species of macrophytes represented by 14 species of 11 genera belonging to 10 dicotyledonous families and 21 species of 17 genera belonging to 10 monocotyledonous families and one species of one genera belonging to one Pteridophyte family (*Isoetes coromaandeliana*). Species like *Ceratophyllum demersum*, *Eichhornia crassipes*, *Hydrilla verticillata*, *Limnophila erecta*, *Limnophila heterophylla*, *Nymphoides hydrophylla*, *Typha domingensis*, *Vallisneria spiralis* are abundantly present in wetland studied where as *Aeschynomene indica*, *Blyxa japonica*, *Eclipta prostrata*, *Eleocharis atropurpurea*, *Eriocaulon quincongulare*, *Limnophila repens*, *Potamogeton crispus* etc are common. Only two species viz. *Alternanthera philoxeroides* and *Monochoria vaginalis* are less common in the wetland studied.

Interestingly several rare and threatened species such as *Cyperus haspan*, *Cyperus iria*, *Drosera burmanni*, *Drosera indica*, *Eleocharis retroflexa*, *Isoetes coromaandeliana*, *Najas malesiana*, *Sagittaria guyanensis*, *Sagittaria sagitifolia* and *Utricularia bifida* are also investigated from three selected wetlands out of 38 wetlands (Adra Sahebbundh, Joypur Ranibundh, Mahatobundh, Nibaransayar, Pokabundh, Sindripathar etc.) studied in the District. Among them *Drosera burmanni*, *Drosera indica* and *Utricularia bifida* are insectivorous plants. Because, It is a continuous longtime process of wetland studied of the authors (Mandal *et al.*, 2003, Mandal and Mukherjee, 2003, 2007, 2008, 2010, 2012a, 2012b, 2014 and 2016) in the District of Puruliya.

Among these macrophytes 22 species are emergent, 9 species (*Ceratophyllum demersum*, *Hydrilla verticillata*, *Isoetes coromaandeliana*, *Limnophila erecta*, *Najas malesiana*, *Nechamandra alternifolia*, *Potamogeton crispus*, *Tonningia axillaris* and *Vallisneria spiralis*) are submerged, 3 species (*Nymphoides hydrophylla*, *Sagittaria guyanensis*, *Sagittaria sagitifolia*) are floating, one species e. g. *Eichhornia crassipes* is free floating and only one species e. g. *Mikania micrantha* is twining in the wetland studied in Puruliya district.

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