

## FLORISTIC AND PHYTOSOCIOLOGICAL STUDIES OF G. B. PANT LAKE WETLAND VEGETATION, PIPRI, SONBHADRA, (U.P.)

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### ABSTRACT

The Present investigation deals with phytosociological characters of riparian vegetation of G.B. Pant Lake, Pipri, Sonbhadra. For the present study G.B. Pant Lake, wetland was differentiated into two zones, (upper zone-site I and lower zone site-II) the species composition, phytosociological characters of vegetation of 46 species of two study sites were observed during pre flowering stage. A total of 31 and 30 species were found on site I and site II respectively. The quantitative analysis of the vegetation reveals that the greater area of site I and II were occupied by the two dominant species *Spilanthes paniculata* and *Mollugo hirta* with 100% frequency and maximum abundance value.

**KEYWORDS:** Phytosociological, Wetland, *Spilanthes paniculata*.

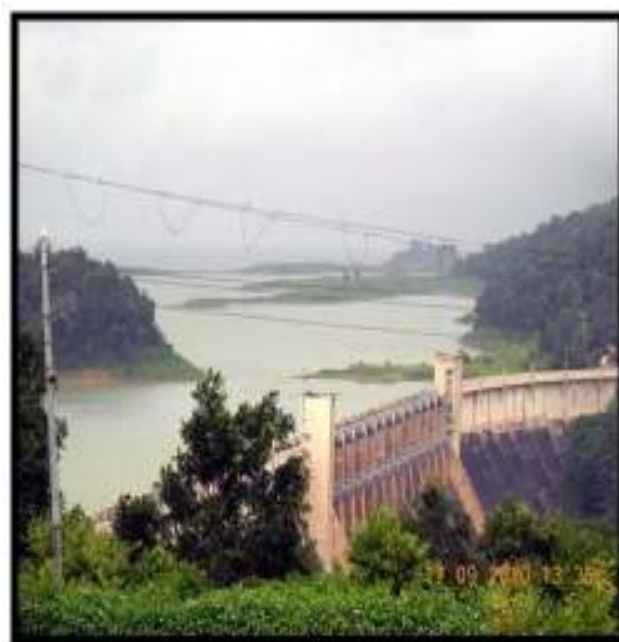
The vegetation of ecotonal wetlands characterized with general features of the flora and their abundances attracts ecologists to explore the variability in component species of plant community, their biodiversity and phytosociological aspect. (Ambasht, R.S., M.R Singh and E. Sharma (1984a). s. Phytosociological studies of a plant community are the first and foremost basis of the studies of any piece of vegetation. Several workers have studied the different aspects of riparian vegetation (Ambasht, R.S. (1991), Singh, M.P. and R.S. Ambasht (1990). The present study reveals the phytosociological characters of riparian vegetation of G.B. Pant Lake, wetland Pipri, Sonbhadra.

### STUDY SITE

The site of present wetlands undertaken for the purpose of study are situated on the sloping banks of the "G. B. Pant Lake" in Sonbhadra. Govind Ballabh Pant Sagar is located around the southern part Sonbhadra, Uttar Pradesh. It is about 5 Km from Renukut situated on Renukut – Shaktinagar road at Pipri – in between Sonbhadra of U.P. and the border area. It is 46 km to the south of River Rihand and Son. The climate around Govind Ballabh Pant Sagar is subtropical, characterized by huge fluctuations in temperature during summer and winter. The normal temperature ranges around 30 degree Celsius to 42 degree Celsius during summer, which drops down to 2 degree Celsius to 15 degree Celsius during winter. The best time to visit would be around the June

July as weather remains pleasant during rainy season.

Wetlands of this lake are under the constant flux of seasonally changing hydro period and anthropogenic activities. Nilsson, C. and R. Johnson (1995). The cumulative effects of existing environmental factors cause well marked changes in the vegetation properties of these wetlands. Menzel, R. G. (1991).



**Figure 1: Govind Ballabh Pant Sagar, (Rihand Dam), Pipri, Sonbhadra,, UP, India.**

**Table 1: List of species composition, frequency, density and abundance of Upper and lower Zones of Study Sites.**

Sl. No.	Plant Species	Study site		Frequency	Density	Abundance %
		Upper zone	Lower zone	%		
1.	<i>Acalypha indica</i> Linn.	p	A	30	6.31	6.25
2.	<i>Achyranthes aspera</i> Linn.	p	A	60	5.00	8.33
3.	<i>Alternanthera sessilis</i> R.Br.	p	P	65	5.81	8.92
4.	<i>Ammania baccifera</i> Linn.	p	P	85	7.80	9.17
5.	<i>Amarathus gangeticus</i> Linn.	p	A	78	6.20	9.20
6.	<i>A. viridis</i> Lipn.	p	A	62	4.00	6.45
7.	<i>Argemone mexicana</i> Linn.	p	A	40	3.00	7.50
8.	<i>Blumea lacera</i> Linn.	P	P	40	1.80	4.50
9.	<i>Boerhaavia diffusa</i> Linn.	p	P	45	12.05	4.44
10.	<i>Chrozophora rotleri</i> A. Juss.	p	A	40	2.10	5.25
11.	<i>Commelina nudiflora</i> Linn.	A	P	65	6.00	9.23
12.	<i>Croton spareiflorus</i> Linn.	- P	A	58	4.00	6.89
13.	<i>Cassia tora</i> Linn.	P	A	52	3.80	7.30
14.	<i>Cynodon dactylon</i> Linn.	P	P	60	8.70	14.50
15.	<i>Cyperus kyllinga</i> Endi.	A	P	80	7.00	8.75
16.	<i>C. rotunds</i> Linn.	P	P	82	1.78	2.17
17.	<i>Desmodium gangeticum</i> Linn.	P	A	75	1.70	2.26
18.	<i>Desmostachya bipinnata</i> Linn.	P	P	80	4.80	6.00
19.	<i>Eclipta alba</i> Hassk.	A	P	90	3.20	3.55
20.	<i>Euphorbia hirta</i> Linn.	P	P	85	5.00	5.88
21.	<i>E. microphylla</i> Heyne & Roth	P	A	88	4.50	5.11
22.	<i>Fvolvulus nummularius</i> Linn.	A	P	80	3.40	4.25
23.	<i>(itiaphalium indicum</i> Linn.	P	P	55	4.00	7.25
24.	<i>(Jomphrena globosa</i> Linn.	P	P	45	2.00	4.44
25.	<i>Heliotropium indicum</i> Linn.	P	A	72	2.80	3.88
26.	<i>Heteropogan contortus</i> Linn.	A	P	70	2.50	3.57
27.	<i>Hygrophila spinosa</i> T. Anclers.	A	P	35*	2.20	6.28
28.	<i>Imper at a cylindrica</i> Beauv.	A	P	45	1.80	4.00
29.	<i>Lippia nodiflora</i> Linn.	P	A	52	2.10	4.03
30.	<i>Ludwigia parviflora</i> Raxb.	A	P	42	2.15	5.11
31.	<i>Malvastrum tricuspidatum</i>	P	A	45	2.30	5.11
31.	<i>Malvastrum tricuspidatum</i> A. Gray.	P	A	45	2.30	5.11
32.	<i>Mollugo hirta</i> Thunb.	P	P	100	18.00	18.00
33.	<i>Nicotiana Plumbaginifolia</i> Viv.	P	P	52	1.50	2.88
34.	<i>Panicum colonum</i> Linn.	P	P	62	12.50	20.16
35.	<i>Parthenium Hysterophorus</i>	P	A	57	2.10	3.68
36.	<i>Polygonum barbatum</i> Linn.	P	P	80	2.10	2.62
37.	<i>P. plebejum</i> R. Br.	A	P	62	5.20	8.38
38.	<i>Potentilla supina</i> Linn.	A	P	35	0.90	2.57
39.	<i>Ranunculus sceleratus</i> Linn.	A	P	30	0.80	2.66
40.	<i>Rumex dentatus</i> Linn.	A	P	68	3.00	4.41

41.	<i>Saccharum spontaneum</i>	P	A	62	2.50	4.03
42.	<i>Scoparia dulcis</i> Linn.	P	P	65	3.00	4.61
43.	<i>Spilanthes paniculata</i>	P	P	100	16.50	16.50
44.	<i>Typha angustata</i> sory	A	P	35	1.20	3.42
45.	<i>Vernonia cinerea</i> Linn.	A	P	42	1.50	3.57
46.	<i>Xanthium strumarium</i> Linn.	P	A	52	0.80	1.53
31.	<i>Malvastrum tricuspidatum</i> A. Gray.	P	A	45	2.30	5.11

characterized by three distinct seasons *i.e.* rainy, winter and summer.

The wetlands sloping banks of G. B. Pant Lake was flooded during rainy season and gradually dried up to October. The herbaceous vegetation on both study sites appeared in the month of November, 20016. The study has been conducted from November, 20016 to June, 20017.

The vegetation of study sites has been analysed by 50cm x 50cm sized quadrat. Phytosociological observations were made during pre flowering stage. Quadrats were laid along line of transect from various direction on study site. The number of individuals of each species present in quadrats was counted and noted down. The basal area of the species was determined by measuring the diameter at the point of emergence, frequency, density and abundance were calculated by formulae given by Mishra<sup>6</sup>.

### SPECIES COMPOSITION

*Acalypha indica*, *Achyranthes aspera*, *Amaranthus gangeticus*, *Amaranthus viridis*, *Argemone mexicana*, *Chrozophora rotleri*, *Croton spirciflorus*, *Cassia tora*, *Desmodium gangeticum*, *Euphoriba microphylla*, *Heliotr- opium indicum*, *Lippia nodiflora*, *Malvastrum tricuspidatum*, *Parthenium hysterophorus*, *Saccharum, spontaneum* and *Xanthium strumarium* were found only in the upper zone of study site. While *Commelina nudiflora*, *Cyperus kyllinga*, *Eclipta alba*, *Evolvulus nummularis*, *Heteropogon contortus*, *Hygrophila spinosa*, *Imperata cylindrica*, *Ludwigia parviflora*, *Polygonum plebejum*, *Pontentilla supina*, *Ranunculus scleratus*, *Rumex denatus*, *Typha angustata*, and *Vernonia cinerea*, were found only in lower zone of study site. Rest of 15 species was found at both zones of study site. (Table-1).

The variation in species composition of the study site is due to local edaphic and biotic interaction.

### PHYTOSOCIOLOGICAL CHARACTERS

It becomes clear from the quantitative analysis

(table-1) of vegetation of study site that the greater area of study site were occupied by two dominant species *Mollugo hirta* Thunb. and *Spilanthespaniculata* Wall., ExDc. The two species showed 100% frequency at study site. Their density and abundances were found to be highest than other species present on the study site. The density and abundance of *Mollugo hirta* was higher than the *Spilanthes paniculata* on study site.

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