Determination Of Succession Stage And Cause Of The Formation Of A Mat Like Structure In A Deep Water Body In A Village Of Purulia,WB,India

[1]SAMBHU B. SAO, [2]MRINMOY MAHATO

[1]Post Graduate Department of Botany, The University of Burdwan,West Bengal,India
[2]Post Graduate Department of Botany, Vidyasagar University ,West Bengal,India

---ABSTRACT---
Floristic composition and vegetative succession were studied in secondarily developed floating island. Species cover was estimated in 1m*1m quadrates and the resulting data set was analysed with Raunkiaer's law to test the vegetational succession and the significant biotic factor to the formation of the floating succession.

KEY WORDS : Succession, Raunkiaer's law, Floating island, Floating mat.

Date of Submission: 25 February 2016   Date of Accepted: 05 March 2016

I.   INTRODUCTION

Floating island also known as tussocks, floatons or suds (Alam et.al.1996 , Haller 1996) are common in many Florida lakes and across the world (Kaul & Zutshi 1966 , Sasser et.al. 1995,1996).

Floating island are composed of native or exotic plants growing on a buoyant mat consisting of plant roots and organic matter (Detritus). According to Reddy(1998) there are three main natural ways in which floating island developed.

The first formation type is characterised by the delamination of unvegetated , floating organic substrate from the deeper sediments reaching the surface of water. Here germination of plants only occurs in a second phase i.e after emergence. This process is considered to be due to shallow water conditions and subsequent rewetting during summer. The second type of formation occurs when the rhizomes of floating aquatic vegetation that is either unattached or expanding from the shore line. This is common in Hungary(Bologh,2000). The third formation type occurs when units of rooted vegetation and substrate split simultaneously from the bed , usually as a result of flooding.

The aim of our survey was to characterise the vegetation in a floating island and to determine the main factor which is responsible for its formation.

- First we analysed floristic composition of the floating island.
- Second we analysed the successional stage and the cause of the mat like formation.

STUDY AREA

The pond is located in Hura block,Nadiha mauza,District Purulia(West Bengal,India). The location is 25 km away from Purulia town. The studied pond is deep enough and has an area of about 100 met^2. The floating mat covered 1/5 of the water surface. The mat floats freely with the strong wind in certain times. In some parts the shore is free from the floating mat. Adjacent to the studied pond a similar sized pond is present but devoid of any mat like configuration. Along the shoreline bushy shrubby plants, Pheonix,Ficus etc large trees are present. The pond is very sacred place for the local villagers and for this reason it is totally devoid of all human interference.

II.   METHOD

We estimated the percentage coverage of species in 10 plots of 1m*1m . Our sampling was random in the sence that we stratified our effort over the dominant vegetation groups present at the floating island. In our sampling data ten quadrates were taken and the data are given in table 1 . Importance value Index(IVI) is used to determine the overall importance of each species in the community structure in table 2

III.   RESULT

As per the observed data in table 3 , A>B=C=D<E .This result aprox. matches the Raunkiaer's law of frequency i.e. A>B>C=D<E . The community is not stable. Soil and Water sample should be examined to conclude the actual cause of the community formation.

Table 1.

Quadrate No.	Occurrence of No. of individuals of each species numbered to I TO VII							
	I	**II**	**III**	**IV**	**V**	**VI**	**VII**	Total
1	5	6	9	0	0	0	0	20
2	5	10	16	2	0	0	0	33
3	3	11	19	0	1	0	0	34
4	6	14	18	0	2	0	1	41
5	4	14	17	0	0	0	1	36
6	4	12	13	0	1	0	0	30
7	0	12	13	1	0	1	0	27
8	0	13	12	1	1	0	0	27
9	5	9	8	0	0	0	0	22
10	4	9	14	0	2	0	0	29
Total	36	110	139	4	7	1	2	299
Occurrence	8	10	10	3	5	1	2	39

❖ I- Dryopteris filix-mas
II- Imperata sp
III- Cynodon sp
IV- Ledwigia sp
V- Elutherenthera sp
VI- Spilanthus paniculata
VII- Polygonum sp

Table 2.

Species	% frequency	Raunkiaer Class	RF(%)	RD(%)	RA(%)	IVI
I	80	D	20.51	12.04	0.13	32.68
II	100	E	25.64	36.78	0.32	62.74
III	100	E	25.64	46.48	0.4	72.52
IV	30	B	7.69	1.33	0.03	9.05
V	50	C	12.82	2.34	0.04	15.2
VI	10	A	2.56	0.33	0.02	2.91
VII	20	A	5.12	0.66	0.02	5.8

Table 3.
The % occurrence of frequency classes as per table 2

Class	% occurrence	expected % occurrence as per Raunkiaers law
A	28.5	53
B	14.2	14
C	14.2	9
D	14.2	8
E	28.5	16