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"ECOLOGICAL STUDY OF BHANDARDARA DAM BACKWATER A¯ BHANDARDARA, TAL: AKOLE, DIST: - AHMEDNAGAR (M.S.)"

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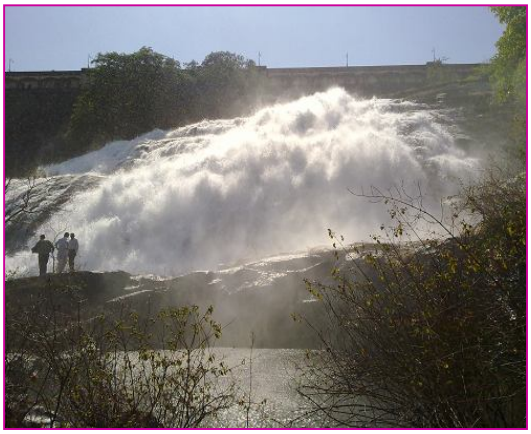
ABSTRACT

Ecological studies were carried out at the selected areas of the bank of Pravara River from June 2012 to May 2014 frequently. It is the backwater reservoir of Bhandardara dam. The quadrats were taken randomly at Amruteshwar, Spillway, Samrad, Mutkhel, Ghatghar for studding riverbank vegetation. Observations have been noted in fields. Specimens were checked an identified in the laboratory. At each locality ten quadrats were taken at random. Values of percentage frequency, density abundance were calculated. Many of the plants shed their foliage during unfavorable season. The effect of floodwater, biotic factor viz. cutting of trees for fuel and domestic purpose, grazing can be easily observed In general vegetation along the bank of river is of 'Dry-deciduous' type; species with reduced leaves, spines and other xerophytic characters occurred all over the bank of water reservoir.



KEY WORDS : *Ecological studies , Bhandardara dam , Values of percentage frequency.*

INTRODUCTION

The Bhandardara dam is constructed on Pravara river near Akole in Maharashtra State at Bhandardara village. The backwater of dam is spread over about 122square kilometers.In the present study Bhandardara dam backwater bank vegetation is studied at different selected stations as S_1-Amruteshwar, S_2-Spillway, S_3-Samrad, S_4–Mutkhel and S_5- Ghatghar by quadrat method.

MATERIALS AND METHODS

Ecological studies in each backwater locality of Bhandardara bam were carried out quadrate method. Quadrat of 3m x3m size was taken for vegetation studies .Trees, shrubs, herbs and climbers were counted from a quadrat. The frequency, abundance and density of each plant were calculated. At each locality ten quadrates were taken at random. Value of percentage frequency, density and abundance were calculated by using formula given by Sntapau H. (1967)

$$\text{Percentage frequency} = \frac{\text{Number of quadrats in which the species occurred}}{\text{Total number of quadrates studied.}} \times 100$$

$$\text{Density} = \frac{\text{Total number of individualsof species in in all quadrates}}{\text{Total number of quadrates studied}}$$

$$\text{Abundance} = \frac{\text{Total number of individuals of species in in all quadrates}}{\text{Total number of quadrates in which species occurred.}}$$

RESULT AND DISCUSSION

The result of ecological study of five different localities is given in tabular form by mentioning botanical name of plant percentagefrequency, density and abundance.

Maximum frequent species in the area studied with percentage frequency between 60 to 80 are *Partheniumhysterophorus* L; *Ipomoeafistulosa*Mlarl; *Prosopisjuliflora* DC; *Xanthium strumarium*L; *Tribulusterrestris*L; *Cassia sophera*L; *Abutilonindicumsweet*.

The species with percentage frequency between 20 to 40 are *Ballanitesroxburghii*planch;*datura metal* L; *Lippianodiflora*Mich; *Triumfettarotundiflora*Lam; *Typhaangustata*Bory and Chaub; *Zizyphusmauritiana*Lamk; *Pongamiapinnata*Pierre; *Capparisaphylla*L.

Following are certain species which indicate value of abundance between 2 to 5 *Boerhaviadiffusa*L; *caesulia axillaries* roxb; *eclipta alba* hassk; *partheniumhysterophorus*L; *prosopisjuliflora*DC; *Tephrosiapurpurea*pers; *Cynodondactylon*pers; *Cyperusrotundudus*L;*Typhaangustata*BoryChnad. *Argemon Mexicana* L *Tridaxprocummbens* L.

Density value between 1 to 3 are of *Ageratum conyzoids* L. *Partheniumhysterophorus* L *Prsopisjuliflora* DC. *Cynodondactylon*pers, *Argemon Mexicana* L. *Caesuliaauxillaris*Roxb, *Tridaxprocumbens* L *Alternatherapungens* H.B. and K, *Solanumxanthocarpum* Sch.

CONCLUSIONS –

Observing the data of frequency, abundance and density, it can be observed that Prosopisjuliflora DC, Balanitesroxburghii planch, Ailanthus excels Roxb, Acacia niloticawilld, Cassia auriculata L Cassia sophea L Cryptostegiagrandiflora R.Br. Achyranthesaspera L., Datura metal L., *Partheniumhysterophorus* L, *Tephrosiapurpurea*persform dominating elements of the vegetation. In general vegetation along the bank of dam is of Dry deciduous type.species with reduce leaves,spines and other xeroplytic characters occurs all over the bank of water reservoir.

Table-1: S_1Quadrate study of Amruteshwar Locality –

Botanical Name	%Frequency	Density	Abundance
Abutilon indicum, Sweet	**60**	**0.6**	**1**
Achyranthesaspera, L.	**60**	**0.8**	**1.33**
Ageratum conyzoides, L.	**60**	**1**	**1.66**
Astercanthalongifolia, Nees.	**60**	**0.6**	**1**
Balanitesroxburghii, Planch.	**40**	**0.4**	**1**
Boerhaviadiffusa, L.	**60**	**1.4**	**2.33**
Cassia sophera, L.	**80**	**1.2**	**1.5**
Caesulia axillaries, Roxb.	**60**	**2**	**3.33**
Commelianaforskalaei, Vahi.	**60**	**1.00**	**1.66**
Datura metal L. Sp.	**60**	**1.00**	**1.66**
Eclipta alba, Hassk.	**60**	**1.8**	**3**

Heliotropiumindicum, L.	60	0.8	1.33
Ipomoea fistulosa, Mlarl.	60	1.8	3
Partheniumhysterophorus	100	4.2	4.2
Physalis minima, L.	60	1	1.66
Prospisjuliflora, DC.	80	2.6	3.25
Sidarhombifolia, L.	60	1.4	2.33
Solanumxanthocarpum, Sch.	60	1.2	2
Tridaxprocumbens, L.	80	2	2.5
Tephrosiaprupurea, Pears.	80	1.8	2.25
Xanthium strumarium, L.	60	0.8	1.33

Table-2: S_2 Quadrate Study of Spill Way.

Botanical Name	%Frequency	Density	Abundance
Achyranthesaspera, L.	60	0.8	1.33
Ailanthus excels, Roxb.	20	0.15	1
Alternantherapungen, H.B.&K.	20	0.2	1
Amaranthusspinasus, L.	60	1.4	2.33
Boerhaviadiffusa, L.	60	1.4	2.33
Cassia sophera, L.	60	1	1.66
Chrozophoraplicata, A. Juss	80	1.6	2
Cyndondactylon, pers.	80	5	6.25
Cyperusrotundus, L.	60	3.4	5.66
Daturametel, L. Sp.	40	0.4	1
Digeraarvensis, Forsk.	60	2.4	4
Heliotropiumindicum, L.	60	1	1.25
Lippianodiflora, Mich.	40	1	2.5
Prosopisjuliflora, DC.	80	1.25	1.5
Tribulusterrestris, L.	80	2.4	3
Triumfettarotundifolia, Lam.	40	0.8	2
Typhaangustata, Boty&Chaub.	40	2.2	5.5
Xanthium strumarium, L.	60	0.8	1.33
Zizyphysmaritiana, Lamk	20	0.2	1

Table-3: S_3 – Quadrate study at Samrad Locality

Botanical Name	%Frequency	Density	Abundance
Abutilon indicum, sweet	40	0.8	2
Alternantherapungens, H.B.&k	60	1.8	3
Acacia nilotica, Willd.	40	0.4	1
Ammaniabaccofera, L.	60	1.6	2.33
Argemone Mexicana, L.	60	3.2	5.33
Boerhaviadiffusa, L.	60	1.4	2.33
Cappariszeylanica, L.	40	0.4	1
Cassia tora, L.	60	2.4	4
Caesulia axillaries, Roxb.	60	3.4	5.66
Cyndondactylon, Pers.	80	4.8	6

Cryptostegiagrandiflora, R. Br.	60	0.8	2
Ciccykysgursytysm Duets,	60	1.4	2.33
Digeraarvensis, Forsk.	80	2.8	3.5
Eclipta alba, Hassk	60	2.2	3.66
Leucasaspera, Spreng	40	1.2	3
Pongamiapinnata, Pierre.	20	0.2	1
Setariaintermedia, RoemChutt.	60	3.6	6
TridaxProcumbens, L.	60	3.4	5.66
Tephrosiapurpurea, pers.	40	1.2	3
Xanthium strumarium, L.	40	1.2	3

Table-4: S_4 Quadrate study at Mutkhel Locality

Botanical Name	%Frequency	Density	Abundance
Abutilon indicum, sweet	40	0.4	1
Achyrantheaaspera L.	60	1	1.66
Alternantherapungens, H.B.&k	60	4.4	5.5
Acacia nilotica, Willd.	80	0.4	1
Astercanthalongifolia,Ness	60	1.4	2.33
Argemone Mexicana, L.	60	0.8	1.66
Boerhaviadiffusa, L.	60	0.4	2
Cappariszeylanica, L.	40	0.4	1
Cassia auriculata, L.	20	1.4	1
Cassia sophera, L.	40	1.6	3.33
Cassia tora, L.	40	0.8	4
CommelianaforskalaeiVahl	40	4.4	2
Cyndondactylon, Pers.	40	0.4	5.5
Cryptostegiagrandiflora, R. Br.	40	1	1
Datura metal L.	40	0.6	2.5
Digeraarvensis, Forsk.	80	1	1.5
Eclipta alba, Hassk	40	4.8	1.66
Partheniumhyterophorus L	60	0.8	8
Prosopisjuliflora DC	60	1	2.66
Pongamiapinnata, Pierre.	40	6	2.5
Setariaintermedia, RoemChutt.	60	0.8	1.66
SolanumxanthocarpumSch	40	6	1.5
TridaxProcumbens, L.	60	0.8	8
Tephrosiapurpurea, pers.	60	1.4	2.66
TyphaangustataBory&Chaub	40	2	5

Table-4: S_5 Quadrate study at Ghatghar Locality

Botanical Name	%Frequency	Density	Abundance
Achyrantheaaspera L.	60	1.4	2.33
Ageratum coenyzoides L	60	1.8	3
Alternantherapungens, H.B.&k	60	1	1.66
Acacia nilotica, Willd.	80	4.4	5.5

Astercanthalongifolia,Ness	**60**	**1.4**	**2.33**
Argemone Mexicana, L.	**60**	**1.4**	**2.33**
Boerhaviadiffusa, L.	**60**	**1**	**1.66**
Cappariszeylanica, L.	**40**	**0.8**	**2**
Cassia auriculata, L.	**60**	**1.6**	**2.66**
Cassia sophera, L.	**60**	**0.4**	**1**
Cassia tora, L.	**40**	**0.4**	**1**
CommelianaforskalaeiVahl	**40**	**0.8**	**2**
Cyndondactylon, Pers.	**40**	**1.4**	**3.33**
Cryptostegiagrandiflora, R. Br.	**40**	**1.6**	**4**
Datura metal L.	**80**	**4.4**	**5.5**
Digeraarvensis, Forsk.	**80**	**4.4**	**5.5**
Heliotropiumindicum, L.	**60**	**1**	**1.25**
Eclipta alba, Hassk	**40**	**0.4**	**1**
Partheniumhyterophorus L	**60**	**4.8**	**8**
Prosopisjuliflora DC	**60**	**0.8**	**2.66**
Pongamiapinnata, Pierre.	**40**	**0.6**	**1.5**
Setariaintermedia, RoemChutt.	**60**	**1**	**1.66**
SolanumxanthocarpumSch	**60**	**0.8**	**2.66**
TridaxProcumbens, L.	**60**	**4.8**	**8**
Tephrosiapurpurea, pers.	**60**	**0.8**	**2.66**
TyphaangustataBory&Chaub	**40**	**2**	**5**

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