

Study of hydrophytes of Narsarha Talab of Shahdol District Madhya Pradesh India

Tasleem Begum

Guest Faculty, Dept. of Botany, Govt. P.G. College, Bareilly District Raisen, Madhya Pradesh, India

Abstract

A study was conducted for the Hydrophytes and its ecological attributes of district Shahdol of Madhya Pradesh. In the district, there are many natural and manmade seasonal wetlands that serve as important gateways for the migratory waterfowl. The current research reports biodiversity of Narsarha Talab during 2014- 2015. Total 40 different hydrophytes were recorded from the wetlands, that include marshy, emergent, free floating and submerged hydrophytes. Significantly most common species belong to families like Poaceae, Araceae, Cyperaceae, Asteraceae. Species such as *Eichhornia crassipes*, *Ipomoea aquatica*, *Typha angustifolia*, *Lemna triscula*, *Spirodella polyrrhiza*, *Chloris barbata*, *Hydrilla Verticillata* L. and *Cyperus* have been found to occur throughout the year.

Keywords: Hydrophytes, Narsarha Talab, Shahdol, Madhya Pradesh, India

1. Introduction

Wetland is among the most productive ecosystems in the world (Mitsch and Gosselink, 1993). Several works have been done on the aquatic macrophytes and phytosociology in different freshwater bodies of India (Kar and Barbhaiya, 2007, Kauramb, 2007, Dabgar, 2006, Prusty and Azeez, 2008^[1] and Gupta, 1996) ^[6, 7, 3, 11, 5]. In India the first comprehensive work on the wetland flora was produced (Biswas and Calder, 1984) ^[1]. Aquatic plants are key components for the well-functioning of wetland ecosystem for biological productivity and support diverse organisms and there by provide lots of goods and services for the dependent people. The aquatic plants are the most important component of the aquatic ecosystem. Wetlands are important for biodiversity conservation as some of the most endangered species survive on them, especially migratory birds. Wetlands are also vital for the maintenance of ground water at an optimum level. Also, if not properly conserved, the catchments area of the wetlands gets blocked upstream, causing water-logging in nearby residential and commercial societies. This has severe economic and health repercussions.

The Shahdol district lies in the north-east part of Madhya Pradesh extending from 29°39'28" and 24°16'13" North latitude and from 80°32'56" to 82°12'21" East longitude approximately. The region lies in the heart of the country. The district is surrounded by Sone river and Rewa district in North, Mandla, in South Sidhi, Shahdol in Surguja East and Umaria and Satna in West. It is situated 489 meter above of the sea surface.

The Shahdol district has undulating and hilly topography. The southern-most part of the district is hilly and form part of the Maikal range, while the portion north of it is quite undulating. In the south most portion has hills of higher elevation as compared to northern portion. There is a continuous drop in elevation from south to north and it attains its lower most elevation in the extreme north where the some forms the boundary of the district. The southernmost portion (parts of south and north Shahdol

divisions) forming part of Maikal range is generally more than 900 m. above msl, while the portion north of it seldom reaches 800 m. msl.

The present hydrophytes is perennial one. The area of talab is nearly 10 hectare. It is situated within municipal area of Shahdol city. The fish culturing carried out since last ten years.

Hence, an effort has been made during this study to investigate the overall biodiversity of Narsarha talab situated in Shahdol district during the year 2015-16.

2. Material and Methods

The present study is the outcome of 6 months intensive survey with critical examination and standard quantitative assessment. In addition, species were documented by simple survey method to make a checklist of entire surveyed and samples areas. Moreover, this survey was attempted to categorize aquatic vegetation into Marshy, emergent, submerged, free floating hydrophytes. The nomenclature of the plant species are used in this paper on based available floras "The Flora of the Presidency of Bombay" (Deshkar, 2008) ^[4], "Aquatic and Wetland Plants of India" (Cooke, 1901-1908) ^[2] and "The Flora of Madhya Pradesh State" (Singh, *et al.* 2001) ^[12]. Once plants were identified, they were poisoned with 1% mercury chloride solution which was followed by drying under blotting paper. The dried, treated specimens were numbered and mounted on standard herbarium sheet.

3. Results and discussion

The flora of Narsarha talab showed 40 genera belonging to 26 families. The check list of plant species with their botanical name, family, local name and habitat is presented in Table 1. Amaranthaceae and poaceae each with 5 plant species were found to be most dominated families. As shown in pie chart 59% of total plant species that were recorded fall into the category of marshy land, followed by 23% emergent hydrophytes, 10% submerged Hydrophytes and 8% free floating hydrophytes. Free floating hydrophytes viz.

Eichhornia, *Lemna* and *Pistia* and Rooted with floating viz. *Nelumbo*, *Nymphaea*, Rooted submerged viz. *Hydrillia*, *Ceratophyllum* and rooted emergent viz. *Typha* and *Cyperus* were recorded throughout the year. *Saggitaria* and *scirpus* were found to be dominant during dry season of the year

only. Some pteridophytes viz. *Azolla pinnata*, *Marsellia* were also found to be abundant in this wetland. There was a number of plants association of which the following were frequently noticeable in the talab:

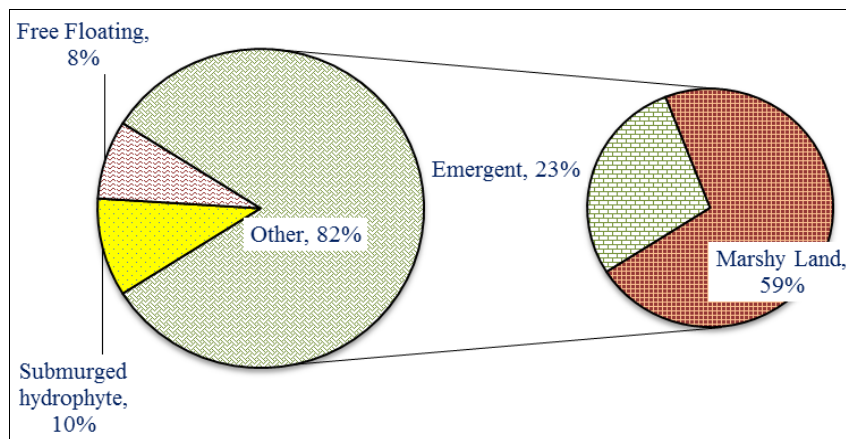


Fig 1: As Shown in pie chart

A) Aquatic Habitat Association

1. *Ludwigia-Ammania - Commelina*
2. *Hydrilla-Ceratophyllum - Lymnophyton*
3. *Nymphaea-Hydrilla-Nelumbo*

B) Marshy Habitat Association

1. *Ipomoea -Typha- Scirpus*
2. *Ammania-Phyla-Commelina*

Biodiversity survey for terrestrial ecosystem of Shahdol district was done by many researches but biodiversity survey of talab in Shahdol especially talabs remained neglected. Current study was aimed at identification of aquatic plants growing in this talab. The plant species in our study were found to influence flood control, aquifer recharge, nutrient absorption and erosion control.

Table 1

S. No.	Scientific Name	Family	Local name	Habitat
1.	<i>Solanum surattense</i> Burm. f.	Solanaceae	Yellow-fruit nightshade	Marshy Land
2.	<i>Ludvigia perrium</i> L.	Onagraceae	Water-primrose	Marshy Land
3.	<i>Vernonia cinerea</i> (L.) Less.	Asteraceae	Ironweed	Marshy Land
4.	<i>Phyllanthus amarus</i> Schumach. & Thonn.	Phyllanthaceae	Carry-me seed	Marshy Land
5.	<i>Pistia stratiotes</i> L.	Araceae	Shellflower (water Lettuce)	Free Floating
6.	<i>Ceratophyllum demersum</i> L.	Ceratophyllaceae	Hornwort	Submerged Hydrophyte
7.	<i>Hydrilla verticillata</i> (L.f.) Royle	Hydrocharitaceae	Waterweed	Submerged Hydrophyte
8.	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	Amaranthaceae	Sanguinaria	Marshy Land
9.	<i>Paspalum vaginatum</i> Sw.	Poaceae	Biscuit grass	Marshy Land
10.	<i>Ludvigia octovalvis</i>	Onagraceae	Willow prime rose	Marshy Land
11.	<i>Ipomoea aquatica</i> Forssk.	Convolvulaceae	Water spinach	Emergent
12.	<i>Hygrophila auriculata</i> (Schumach.) Heine	Acanthaceae	Gokulakanta	Marshy Land
13.	<i>Ammania baccifera</i> L.	Lythraceae	Monarch redstem	Marshy Land
14.	<i>Alternanthera pungens</i> kunth.	Amaranthaceae	Khaki weed	Marshy Land
15.	<i>Commelina forsskalii</i> Vahl	Commelinaceae	Asiatic Dayflower	Marshy Land
16.	<i>Nelumbo nucifera</i> Gaertn.	Nelumbonaceae	Indian lotus	Free Floating
17.	<i>Chloris barbata</i> Sw.	Poaceae	Windmill grass or finger grass.	Marshy Land
18.	<i>Hygroryza aristata</i> (Retz.) Nees ex Wight & Arn.	Poaceae	Great duckweed	Emergent
19.	<i>Spirodela polyrrhiza</i> (L.) Schleid.	Araceae	Water velvet	Free Floating
20.	<i>Azolla pinnata</i> var. <i>imbricata</i> (Roxb. ex Griff.) Bonap	Azollaceae	Blunt Arrowhead	Free Floating
21.	<i>Limnophyton obtusifolium</i> (L.) Miq.	Alismataceae	Elephant's ear	Emergent
22.	<i>Dactyloctenium aegyptium</i> (L.) Willd	Poaceae	Egyptian grass	Marshy Land
23.	<i>Limnophila gratioloides</i> R. Br.	Schrophulariaceae		Marshy Land
24.	<i>Marsilea quadrifolia</i> L.	Marsiliaceae	Four Leaf Clover	Marshy Land
25.	<i>Utricularia vulgaris</i> L.	Lentibulariaceae	Common Bladderworts	Submerged Hydrophyte
26.	<i>Gomphrena celosioides</i> Mart.	Amaranthaceae	Gomphrena Weed	Marshy Land
27.	<i>Bergia ammannioides</i>	Elatinaceae	Jerry Water fire	Marshy Land
28.	<i>Cressa cretica</i> L.	Convolvulaceae	European water clover	Marshy Land
29.	<i>Phyla nodiflora</i> (L.) Greene	Verbenaceae	Turkey tangle fogfruit	Marshy Land

30.	<i>Elaeocarpus variabilis</i> Zmarzty	Elaeocarpaceae	Chorphone	Marshy Land
31.	<i>Aeschynomene indica</i> L.	Fabaceae	Curly indigo	Marshy Land
32.	<i>Eliocharis dulcis</i>	Cyperaceae	Wrinkle duck-beak	Marshy Land
33.	<i>Ischaemum rugosum</i> Salisb.	Poaceae	Wrinkle duck-beak	Marshy Land
34.	<i>Cyperus difformis</i> L.	Cyperaceae	Flat sedge	Marshy Land
35.	<i>Alternanthera philoxeroides</i>	Amaranthaceae	Alligator weed	Marshy Land
36.	<i>Eichhornia crassipes</i> (Mart.) Solms	Pontederiaceae	Water hyacinth	Emergent
37.	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Spiny amaranth	Marshy Land
38.	<i>Sphaeranthus indicus</i> L.	Asteraceae	Gorkhmundi	Marshy Land
39.	<i>Peristrophe paniculata</i> (Forssk.) Brummitt	Acanthaceae	Panicled Foldwing	Marshy Land
40.	<i>Colocasia esculenta</i> (L.) Schott	Araceae	Elephant's ear	Emergent

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5. References

1. Biswas K, Calder C. Handbook of common water and marsh plants of India, B. S. Mahendrapal Singh (Dehradun), 1984; XVI:216,
2. Cooke T. The flora of the Presidency of Bombay. Vol.-I & II. London. B S I reprinted Calcutta (1901-1908). 1958, I-III.
3. Dabgar PJ. A contribution to the wetland flora of satlasana taluka, North Gujarat. Adv. in Bio. Sci. 2006; 5:79-82.
4. Deshkar SL. Avifaunal Diversity and Ecology of wetlands in semiarid zone of central Gujarat with reference to their conservation and categorization. Ph. D. Thesis, M. S. University, Vadodara, 2008.
5. Gupta RS. A Study of hydrophytes and marsh plants of Kota & environs (India). Tropical Ecology 1996; 7:153-160.
6. Kar D, Barbhaiya MH. Macrophytic diversity in certain wetlands of Barak valley region in Assam. Proc. *Indian Sci. Cong.* New Delhi. 2007, 76.
7. Kauramb M. Study of Macrophytes of Kanewal wetland and comparative study with Goya pond. M. Sc. Dissertation, S. P. University, Bakrol, Gujarat, 2007.
8. Mitsch and Gosselink. Academic.emporia.edu/aberjame/wetland/define/define.htm Wetlands (2nd ed.). Van Nostrand Reinhold Co., New York, 1993.
9. Parmar AJ, Patel NK. Study of aquatic angiosperm plants of paten district Life sciences Leaflets, 2010; 3:54-68.
10. Phatak VG, Satakopan S. Plant types of the ponds of the plains around Baroda. I-Pond vegetation at harni (Baroda). Journal of the M.S. University of Baroda. 1957; 6:11-40
11. Prusty Chandra RJ, Azeez PA. Biomass and productivity of plant community in a rainfed monsoonal wetland ecosystem with specific emphasis on its temporal variability. In: International wetland Ecology, Conservation and restoration. 2008; 5:1-21.
12. Singh NP, Khanna KK, Mudgal V, Dixit RD. (eds.), Flora of Madhya Pradesh Botanical Survey of India, Calcutta, 2001, III.