



## An Overview of Aquatic and Marshy Monocot Plants of Nandurbar District (Maharashtra)

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### ABSTRACT

The present paper enlists the aquatic and marshy monocot plants of Nandurbar District (Maharashtra). In all 66 species belonging to 29 genera and 15 families have been reported. Their correct nomenclature, phenology, distribution, abundance and morpho-ecological categories are provided.

**KEYWORDS :** Aquatic, Marshy, Monocot Plants, Nandurbar District

### INTRODUCTION:

Nandurbar district is situated between 20 and 21° North latitude and 74.55 and 76.59 East longitude. There are six talukas in Nandurbar district. It is a tribal district of the Maharashtra state. The tribal hamlets are scattered in this stretch of land. The climate shows maximum temperature 48° c, minimum 10.3°c; average rain fall is 690 mm. The tributaries of Narmada and Tapi are running in the district. The river beds are moist alluvial or sandy. The rivers, rivulets and streams are flooded during monsoon. During monsoon and post-monsoon periods the river banks harbour luxuriant aquatic and marshy vegetation. Prakasha barrage and Kondawal, Susri and Dara reservoirs also contribute to the aquatic flora in the district. Toranmal hills constitute special natural features of the district, as it is second hill station of Maharashtra state with height about 1155 m. The numbers of aquatics which inhabit water of rivers, rivulets, nalas and other water bodies

have luxuriant vegetation. The plant species were identified by using various floras. (Cook, 1958), (Sharma *et al*, 1996) and (Patil, 2003). The plants are arranged alphabetically in Table-1

### MATERIALS AND METHODS:

The field work carried out in the year 2012-2013 and 2013-2014. Visits are paid in different seasons encompassing every nook and corner of the district. The data pertaining to botanical name, family, flowering and fruiting period and distribution were particularly noted during the study. Herbarium specimens were prepared by using customary methods and are deposited in the Department of Botany, P. S. G. V. P. Mandal's Arts, Science and Commerce College, Shahada Dist- Nandurbar, Maharashtra. The plant species were identified by using various floras. (Cook, 1958), (Singh *et al*, 1998) and (Patil, 2003).

**Table-1. Systematic Enumeration of Aquatic and Marshy Monocot Plants:**

Sr.No.	Botanical Name	Family	Flowering and Fruiting period	Distribution
1	<i>Commelina clavata</i> Clarke.	Commelinaceae	July-October	Along nalas as forest under growth
2	<i>Commelina erecta</i> L.	Commelinaceae	August-October	Common in moist and shady places in forest
3	<i>Commelina hasskarlii</i> Clarke	Commelinaceae	September- November	Fairly common in moist places in forest
4	<i>Commelina suffruticosa</i> Bl.	Commelinaceae	August- November	Frequent in forest undergrowth in mist and shady habitats on slope
5	<i>Colocasia esculenta</i> (L.) Schott.	Araceae	Throughout year	In ravines or along nalas
6	<i>Costus speciosus</i> (Koenig) J.E.Sm.	Zingiberaceae	September-October	In the forest under growth, in ravines.
7	<i>Crinum defixum</i> Ker-Gawl.	Amaryllidaceae	August-October	In water logged, stony river bed of Tapi
8	<i>Cynotis cristata</i> (L.) D. Don	Commelinaceae	July- December	Common undergrowth along in moist and shady places
9	<i>Cynotis fasciculata</i> (Heyne ex Roth) J.A. & J. H. Schult	Commelinaceae	August- October	Common in open forest in moist and shady places
10	<i>Cyperus alulatus</i> Kern.	Cyperaceae	August- December	Common in marshy places
11	<i>Cyperus bulbosus</i> Vahl, Enum.	Cyperaceae	August- December	Occasionally in wet places along river banks, nalas, etc.
12	<i>Cyperus castaneus</i> Willd.	Cyperaceae	September- November	Occasionally in moist places
13	<i>Cyperus compressus</i> L.	Cyperaceae	September- October	Common in wet, waste places
14	<i>Cyperus difformis</i> L.	Cyperaceae	September- March	Common in wet places, nalas and rivers
15	<i>Cyperus exaltatus</i> Retz.	Cyperaceae	September- December	Frequent in marshy places, in nalas an rivers, along bank of water reservoirs
16	<i>Cyperus flavidus</i> Retz.	Cyperaceae	August- March	In moist places
17	<i>Cyperus hyalinus</i> Vahl, Enum.	Cyperaceae	September- October	Occasional in marshy places
18	<i>Cyperus iria</i> L.	Cyperaceae	September- November	Frequent in wet areas, along nalas, rivers etc.
19	<i>Cyperus iria</i> L. var. <i>paniciformis</i> (Franch. Et. Sav.) Clarke.	Cyperaceae	September- November	Occasional in wet places along river banks, nalas etc.

20	<i>Cyperus laevigatus</i> L.	Cyperaceae	September- November	Occasional in marshy places
21	<i>Cyperus nutans</i> Vahl. var. <i>eleusinoides</i> (Kunth) Haines.	Cyperaceae	August- March	Common in nalas and rivers
22	<i>Cyperus pangorei</i> Rottb.	Cyperaceae	August- March	Common in nalas and rivers
23	<i>Cyperus pumilus</i> L.	Cyperaceae	August- October	Occasional in marshy places
24	<i>Cyperus pygmaeus</i> Rottb.	Cyperaceae	September- December	Occasional in wet places
25	<i>Cyperus rotundus</i> L.	Cyperaceae	More or less throughout year	Common in marshy places
26	<i>Cyperus squarrosus</i> L.	Cyperaceae	August- December	Common amidst grasses in wet places
27	<i>Cyperus rotundus</i> L. subsp. <i>tuberosus</i> (Rottb.) Kuekenth	Cyperaceae	September- November	Common along nalas, river banks, streams and wet places
28	<i>Eleocharis atropurpurea</i> (Retz.) J & K. Presl.	Cyperaceae	August- December	Common in wet places along river banks, nalas and ponds
29	<i>Eleocharis geniculata</i> (L.) Roem. & Schult.	Cyperaceae	July- December	Common in nalas and rivers
30	<i>Eriocaulon diana</i> e Fyson	Eriocaulaceae	September- October	Occasional in wet habitats in hilly areas
31	<i>Eriocaulon margaretae</i> Fyson	Eriocaulaceae	September- October	Occasional in marshy places in hilly forests
32	<i>Fimbristylis argentea</i> (Rottb.) Vahl, Enum.	Cyperaceae	September- November	In marshy places along river banks, nalas, ponds etc.
33	<i>Fimbristylis cymosa</i> R. Br., Prodr.	Cyperaceae	September- December	Common on marshy and rocky soil along rivers, nalas etc.
34	<i>Fimbristylis ferruginea</i> (L.) Vahl, Enum.	Cyperaceae	September- November	Occasional along river banks, water reservoirs
35	<i>Fimbristylis microcarya</i> F. V. Muell.	Cyperaceae	September- December	Common in wet places, along nalas and rivers
36	<i>Fimbristylis miliacea</i> (L.) Vahl, Enum.	Cyperaceae	September- November	Common in wet places, along banks of nalas, rivers, water reservoirs etc.
37	<i>Fimbristylis sieberiana</i> Kunth, Enum.	Cyperaceae	September- November	Common in marshy places along nalas, rivers, ponds etc.
38	<i>Fimbristylis tenera</i> Schult.	Cyperaceae	September- November	Common in marshy places, along nalas, river banks etc.
39	<i>Fuirena wallichiana</i> Kunth, Enum.	Cyperaceae	July- March	Occasional, locally abundant in marshy places
40	<i>Hydrilla verticillata</i> (L.f.) Royle	Hydrocharitaceae	October-January	Common in ponds, ditches, tanks and streams forming dense masses
41	<i>Hypoxis aurea</i> Lour.	Hypoxidaceae	August-October	Along stretches of river bank
42	<i>Iphigenia indica</i> (L.) A. Gray	Liliaceae	July-September	Frequent along nalas or ravines among grasses
43	<i>Kyllinga brevifolia</i> Rottb.	Cyperaceae	July- December	Common in wet places
44	<i>Lemna gibba</i> L.	Lemnaceae	November- June	Common, floating in dirty or polluted water, in river beds, ditches, along roadsides, etc.
45	<i>Murdannia nudiflora</i> (L.) Brenan	Commelinaceae	August- November	Common in damp places among grasses in open forests
46	<i>Murdannia semiteres</i> (Daltz.) Santapau	Commelinaceae	July- October	In swampy places, among grasses on stony ground
47	<i>Murdannia spirata</i> (L.) Brueck.	Commelinaceae	August- October	In wet habitats
48	<i>Najas graminea</i> Del.	Najadaceae	October- December	Occasional in Tapi river, also found in ponds
49	<i>Najas indica</i> (Willd.) Cham.	Najadaceae	October-November	In Gomai river bed
50	<i>Najas marina</i> L.	Najadaceae	December- March	Common in Tapi river bed
51	<i>Ottelia alismoides</i> (L.) Pers.	Hydrocharitaceae	November-March	In stagnant or slow running water
52	<i>Potamogeton crispus</i> L.	Potamogetonaceae	October- January	Occasionally in river beds, ponds, etc.
53	<i>Potamogeton nodosus</i> Poir.	Potamogetonaceae	December- March	Occasional on river beds, also seen in canals
54	<i>Potamogeton pectinatus</i> L.	Potamogetonaceae	October-November	Common in river beds, ponds, etc.
55	<i>Schoenoplectus lateriflorus</i> (J. F. Gmelin) Lye.	Cyperaceae	September- December	In drying moist ground, along bank of rivers or nalas
56	<i>Schoenoplectus maritimus</i> (L.) Lye.	Cyperaceae	October- January	Occasional along river banks and nalas
57	<i>Schoenoplectus roylei</i> (Nees) Ovczinn & Czukov.	Cyperaceae	August- November	In marshy places along river banks or nalas
58	<i>Scirpus affinis</i> Roth.	Cyperaceae	September- March	Occasional along water courses
59	<i>Scleria stocksiana</i> Boeck	Cyperaceae	August- November	Occasional in marshy grasslands
60	<i>Spirodela polyrhiza</i> (L.) Schleid.	Lemnaceae	November-June	Common, floating in pools, ditches and river water
61	<i>Tonningia cucullata</i> (Roth.) O. Ketz.	Commelinaceae	August- October	Common floating in low laying marshy places
62	<i>Typha domingensis</i> Pers.	Typhaceae	September- February	Common in marshes along streams, River banks usually stretching into beds forming a pure beds
63	<i>Vallisneria nutans</i> (Lour.) Hara.	Hydrocharitaceae	December-February	Common in stagnant water in ponds, ditches
64	<i>Wolffia arrhiza</i> (L.) Horkel ex Wimmer.	Lemnaceae	November- July	Common, free floating, forming a green scum on the entire water surface
65	<i>Zannichellia palustris</i> L.	Zannichelliaceae	October- November	In Gomai river bed

66	<i>Zeuxine strateumatica</i> (L.) Sch.	Orchidaceae	December-April	Occasional in pastures along streams or in swampy localities among grasses
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### DISCUSSION:

The Maharashtra state is having 279 species, 4 subspecies and 12 varieties of hydrophytic angiosperms (Karthikeyan *et al*, 1982). The Jalgaon district has 91 species belonging to 68 genera of 26 families of aquatic and marshy angiospermic plants where, Cyperaceae is dominant family having 35 species (Kshirsagar and Patil, 1998). The Nandurbar district have rich aquatic flora. The dicot hydrophytes are recorded belonging to 25 genera and 15 families, in which Scrophulariaceae is the dominant family having five species followed by Polygonaceae with four species in Nandurbar district (Tayade *et al* 2015). In all 66 species of monocot hydrophytes are recorded belonging to 29 genera and 15 families. Cyperaceae is dominant family having 34 species belonging to 8 genera followed by Commelinaceae with 10 species, Hydrocharitaceae, Lemnaceae, Najadaceae and Potamogetonaceae with 3 species each. This aquatic vegetation has profound influence on the nutrient budget of the aquatic and marshy ecosystems and their hydrological balance in the entire vegetation of Nandurbar district. Free floating hydrophytes *Lemna gibba*, *Spirodela polyrhiza* and *Wolffia arrihiza* are the only species in these habitats. The number of aquatics which inhabit water of rivers, rivulets and other water bodies are limited, these are *Hydrilla verticillata*, *Vallisneria nutans*, species of *Najas* and *Potamogeton*. Attached hydrophytes with floating leaves *Ottelia alismoides* is the only species in these habitats. The hydrophytes observed from the area are categorized into the following morpho-ecological groups on the basis of their contact with soil, water and air:

#### Free floating hydrophytes:

These are plants that are in contact with water and air only. For example, *Lemna gibba*, *Spirodela polyrhiza*, *Wolffia arrihiza*.

#### Attached submerged hydrophytes:

These are entirely or at least to the most part, in contact with soil and water only. The following are some plants belonging to this category; *Hydrilla verticillata*, *Potamogeton crispus*, *Najas graminea*, *Najas indica*, *Najas marina*, *Potamogeton nodosus*, *Potamogeton pectinatus*, *Vallisneria nutans* etc.

#### Attached hydrophytes with floating leaves:

These are in contact with soil, water as well as air *Ottelia alismoides* is in this category.

#### Wetland hydrophytes:

These are rooted in the soil that is usually saturated with water, at least in the early part of their life. The following are some plants belonging to this category;

*Commelina* Sp., *Cynotis* Sp., *Cyperus* Sp., *Eriocaulon diana*, *Eriocaulon margaretae*, *Eleocharis atropurpurea*, *Eleocharis geniculata*, *Fimbristylis* Sp., *Fuirena wallichiana*, *Kyllinga brevifolia*, *Murdannia* Sp., *Schoenoplectus* Sp., *Tonningia cucullata*, *Typha domingensis* etc.

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