(II)

AQUATIC FLORA OF SOME NOTIFIED BIRD SANCTUARIES OF UTTAR PRADESH

Out of the 12 notified bird sanctuaries of Uttar Pradesh, six bird sanctuaries namely – Nawabganj Bird Sanctuary, Unnao District, Sur Sarovar Bird Sanctuary, Agra District, Patna Bird Sanctuary, Etah, Saman Bird Sanctuary, Mainpuri, Parvati Aranga Bird Sanctuary, Gonda and Bakhira Bird Sanctuary, Sant Kabir Nagar were surveyed for the inventorisation of aquatic plants growing in and around these habitats during the year 2002-2004. All these bird sanctuaries had been notified by the State Government in the year 1990. It would be interesting to note that the plants growing in these bird sanctuaries have influenced the migratory avian fauna. Utilization of natural communities of water weeds for human or animal food has received relatively little interest, but the extensive areas of water weeds in many tropical regions must be considered as a potential source of food. Pilot studies in the United States (Bailey, 1965) demonstrated that feeds of high quality can be made from several species of aquatic plants. Aquatic plants are easily palatable, non-toxic as well as very good source of protein, fat, carbohydrates, vitamins and and mineral nutrients. It has low fibre content so that most of the organic matter is highly digestible even to avian fauna. Most of the plants listed in the present report were found having average values for nutrients such as ash, crude protein, fat, cellulose (Mitchell, 1974). a complete list of plants along with their habitat is provided. This information would be useful to the wildlife experts, wildlife managers, botanists and even to the common man visiting these bird sanctuaries for developing strategies on conservation and management of the sanctuaries. A list of plants (Table 1) along with their family and correct nomenclature is provided in this communication. The species are arranged alphabetically and all the voucher specimens are deposited in the Herbarium of National Botanical Research Institute, Lucknow (LWG).

Nawabganj Bird Sanctuary has 12 species of aquatic plants. The area is surrounded by dense trees such as *Anthocephalus kadamba, Prosopis* sp., etc. The litter fall from tall trees fills the water reservoir, thus, the number of aquatic species is comparatively low.

Sur Sarovar Bird Sanctuary, Agra has 8 species of aquatic plants and this is situated in a place where the climatic conditions are harsh and temperature is high during the summers and the water table is very low.

Patna Bird Sanctuary, Etah has highest number of aquatic plants (25) as the ponds and other water bodies are clear and are situated at an open place. Human interference is low in these reservoirs.

Saman Bird Sanctuary, Mainpuri has very few (3) aquatic species due to absence of water bodies in the area.

The aquatic flora of Parvati Aranga Bird Sanctuary, Gonda is rich having 24 species. Water bodies with shady places are responsible for luxuriant growth of aquatic flora.

Bakhira Bird Sanctuary, Sant Kabir Nagar has lesser number (6) of aquatic species because of harsh climatic conditions and rocky soil. The water bodies are shallow and boggic.

Table 1

List of Plants from six Bird Sanctuaries of U.P.

Species	NBS	SSBS	PBS	SBS	PABS	BBS
1	2	3	4	5	6	7
Adenostemma lavenia (L.) O. Ktze., (Asteraceae)	x	x	x	x	✓	x
Ageratum conyzoides L. (Asteraceae)	x	x	✓	✓	x	x
Alternanthera sessilis (L.) R. Br. *ex* DC. (Amaranthaceae)	x	x	✓	x	x	x
Azolla pinnata R. Br. ssp. *asiatica* Saunders & Fowler (Azollaceae)	✓	x	x	x	x	x
Centrostachys aquatica (R. Br.) Wall. ex Moq.- Tand.	x	x	✓	x	x	x
Celosia argentea L. (Amaranthaceae)	x	✓	x	x	x	x
Ceratophyllum demersum L. (Ceratophyllaeceae)	✓	x	✓	x	✓	✓
Ciox gigantea Koen. *ex* Roxb. (Poaceae)	x	x	x	x	✓	x
Colocacia asculenta (L.) Schott, (Araceae)	x	x	x	x	✓	x
Coldenia procumbens L. (Boraginaceae)	✓	x	x	x	x	x
Commelina harsskarlii Cl. (Commelinaceae)	x	x	x	x	✓	x
Corchorus capsularis L., (Tiliaceae)	x	x	✓	x	✓	x
Cyperus exaltatus Retz. (Cyperaceae)	✓	x	✓	x	✓	x
Cyperus pygmaeus Rottb. (=*Juncellus pygmaeus* (Rottb.) C.B. Clarke). (Cyperaceae)	✓	x	x	x	x	x
Eclipta alba (L.) Hassk. (Asteraceae)	x	x	✓	✓	x	x
Eclipta prostrata (L.) L. (= *Eclipta alba* (L.) Hassk.) (Asteraceae)	✓	x	✓	✓	x	x
Eichhornia crassipes (Mart.) Solms. (Pontederiaceae)	✓	✓	x	x	x	x
Gomphrena serrata L. (= *Gomphrena celosioides* (auct. non Mart.) (Amaranthaceae)	x	✓	x	x	x	x
Grangea maderaspatana (L.) Poir. (Asteraceae)	x	x	✓	x	x	x
Hydrilla verticillata (L.f.) Royle (Hydrocharitaceae)	x	✓	✓	x	✓	✓
Hygrophylla schulli (F.Ham.) M.R. Almeida *et* S.M. Almeida (Acanthaceae)	x	x	x	x	✓	x

Contd...

1	2	3	4	5	6	7
Hygroriza aristata (Retz.) Nees *ex* Wt. & Arn., (Poaceae)	x	x	x	x	✓	x
Ipomea aquatica Forssk. (Convolvulaceae)	x	x	✓	x	✓	x
Ipomea carnea Jacq. subsp. *fistulosa* (Mart. *ex* Choisy) Austin (Convolvulaceae)	x	x	✓	x	✓	✓
Lemna purpusilla Torrey. (Lemnaceae)	✓	x	x	x	x	x
Ludwigia adscendens (L.) Hara (Onagraceae)	✓	x	✓	x	x	✓
Marsilea minuta L. (Marceleaceae)	x	x	x	x	✓	x
Mullugo hirta Thumb. (Aizoaceae)	✓	x	x	x	x	x
Neptunia oleracea Lour. (Fabaceae)	x	x	✓	x	x	x
Nelumbo mucifera Gaertn. (Nelumbonaceae)	✓	x	✓	x	✓	x
Nymphoides indica (L.) O. Ktze. (Menyanthaceae)	x	x	✓	x	x	x
Nymphaea pubescens Willd. (Nymphaceae)	x	x	✓	x	x	x
Panicum paludosum Roxb. (Poaceae)	x	✓	✓	x	x	x
Polygonum barbatum L. subsp. *gracile* Danser. (Polygonaceaex	x	x	x	x	✓	x
Polygonum flaccidum Meissn. (Polygonaceae)	x	✓	x	x	x	x
Polygonum glabrum Willd. (Polygonaceae)	x	x	✓	x	✓	x
Polygonum pleibium R.Br. (Polygonaceae)	x	x	✓	x	x	x
Polygonum lapathifolium L. var. *lanatum* (Roxb.) Steward (Polygonaceae)	x	x	✓	x	✓	x
Phyla nodiflora (L.) E. Greene (Verbenaceae)	x	x	✓	x	✓	x
Potamogeton nodosus Poir. (Potamogetonaceae)	x	x	x	x	x	✓
Potamogeton pectinatus L. (Potamogetonaceae)	x	✓	x	x	x	x
Salvinia cucullata Roxb. *ex* Borry, (Salviniaceae)	x	x	x	x	✓	x
Scirpus articulatus L. (Cyperaceae)	✓	x	x	x	x	x
Scirpus tuberosus Desf. (Cyperaceae)	x	x	✓	x	x	x
Sphenoclea zeylanica Gaertn. (Campanulaceae)	x	x	✓	x	x	x
Typha domingensis Pers. (Typhaceae)	x	x	x	x	✓	x
Vallisneria natans (Lour.) Hara (= *Vallisneria spiralis* auct. non. L.) (Hydrocharitaceae)	x	✓	x	x	x	x
Vallisnaria spiralis L. (Fabaceae)	x	x	x	x	✓	x
Vetiveria zizanoides (L.) Nash (Poaceae)	x	x	✓	x	✓	x
Urena lobata L. (Malvaceae)	x	x	x	x	✓	x

✓ - Available; x - Not Available

NBS = Nawabganj Bird Sanctuary, SSBS = Sur Sarovar Bird Sanctuary, PBS = Patna Bird Sanctuary, SBS = Saman Bird Sanctuary, PABS = Parvati Aranga Bird Sanctuary, BBS = Bakhira Bird Sanctuary,

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