

# Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Bureau. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

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## 1. Name and address of the compiler of this form:

World Wide Fund for Nature- India,  
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Designation date

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Site Reference Number

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## 2. Date this sheet was completed/updated:

January 2004

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## 3. Country: INDIA

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## 4. Name of the Ramsar site:

Upper Ganga River (Brijghat to Narora Stretch)

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## 5. Map of site included:

Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps.

a) **hard copy** (required for inclusion of site in the Ramsar List): yes  -or- no

b) **digital (electronic) format** (optional): yes  -or- no

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## 6. Geographical coordinates (latitude/longitude):

Brijghat 28°46'0.7"N and 78°8' 16.0"E  
Narora 28°21'N and 78°17'E

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## 7. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town. Nearest town along the 85 km. river stretch from Brijghat to Narora are Ghaziabad, Bulandsahar, Badayun and Moradabad. The approximate length of the stretch from Narora to Brijghat is 82 km.

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**8. Elevation:** (average and/or max. & min.)  
204.7 to 183 m asl.

**9. Area:** (in hectares)  
26,590 ha

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## 10. Overview:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The entire river stretch from Brijghat to Narora is shallow with only intermittent small stretches of deep-water pools and reservoirs upstream barrages. The bank of the entire river stretch up to Narora is sandy and muddy, but with significantly rich biodiversity and religious importance.

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### 11. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8

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### 12. Justification for the application of each Criterion listed in 11. above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

**Criterion 2:** Upper Ganga River supports mammalian species like Ganges river dolphins (*Platanista gangetica*) listed in CITES, IUCN Redbook as Endangered, common-otters (*Lutra lutra*), two species of crocodiles i.e. endangered *Gavialis gangeticus* and vulnerable *Crocodylus palustris*. Under the national legislation these species are also protected as Schedule I of Wildlife protection Act 1972. Besides, out of 12 species of turtles identified from this stretch, 6 species are considered as endangered including Indian Softshell turtle (*Aspideretes gangeticus*).

**Criterion 3:** The Upper Ganga River supports a rich biodiversity. Besides, the species mention in Criterion 2, dominating plants along the river stretch are Shesham (*Dalbergia sissoo*), Ashoka (*Saraca indica*), Eucalyptus (*Eucalyptus Globulus*), Banyan (*Ficus bengalensis*), Bamboo (*Dendrocalamus Strictus*), Teak (*Tectona grandis*) and Neem (*Azadirachta indica*) etc. Beside this, bamboo grasses and some aquatic flora like *Eichhorina* common.

Zooplanktons species are dominated by four main taxonomic groups Protozoa, Rotifera, Cladocera and Copepoda. A total of 40 forms of zooplanktons are identified in the stretch with 10 species of Protozoans, 16 Rotifers, 4 Cladocerans and 5 Copepods.

The density of Phytoplanktons varies from 36 to 2116  $\mu$  / l. A total of 15 species of molluscs belonging to 10 families was also recorded.

**Criterion 4:** In addition to the red listed species, these are endemic to the area, such as fishes - *Tor tor*, *Tor pititora*. The stretch is reported to be critical in their life cycle. The numerous water birds use the shallow water pools for roosting and breeding.

**Criterion 5:** More than 100 species of birds belonging to 34 families both aquatic and terrestrial avifauna were identified along with there population. More than 20,000 birds are reported in the stretch which includes Pintails (*Anas acuta*) (1148), Brahmini Duck (*Tadorna ferruginea*) (1136), Coot (*Fulica atra*) (8000), Cormorant (*Phalacrocorax fuscicollis*) (3500), Purple moorhen (*Porphyrio porphyrio*) (2000), Spoonbill (*Platalea leucordia*) (1500), Openbills (*Anastomus oscitans*) (500), Bar-headed geese (*Anser indicus*)(600), Gulls (*Larus ridibundus*)(800) according to 2002 survey conducted by WWF India. List of Birds is provided in Appendix 1. (Total yearly estimate is available in the annual dolphin survey reports of the Upper Ganga River - WWF-India 1997 – 2004). During the dolphin survey in the river stretch in winter, estimation of aquatic birds was collected and annexure in this report. However, the report is still unpublished.

**Criterion 7:** Fish forms the largest group of living natural resources in this river stretch. According to the survey conducted by WWF India, a total of 82 species of fishes were identified. Fishes like *Wallago attu*, *Chela laubuca*, *Colisa fasciatus*, *Chanda ranga*, *Glossogobius giuris*, *Nangra punctata*, *Puntius sp.* and *Puntius sophore* are common in the river. List of fishes are given in Appendix 2.

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**13. Biogeography** (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) **biogeographic region:** Unavailable.

b) **biogeographic regionalisation scheme** (include reference citation): Unavailable.

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#### **14. Physical features of the site:**

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

##### **Geography**

The river after passing Bijnor district enters Meerut and Moradabad districts, which are situated in right and left bank of the river, respectively. Brijghat is a religious *ghat* (or jetty) situated at the right bank.

Large number of factories like sugar, chemicals, fertilizers, engineering, cotton and tanneries are situated on the banks of the river. The discharges from these industries enter the Ganga River directly or indirectly pollute the river to a considerable extent.

##### **Geology**

The entire river stretch from Bijnor to Narora is shallow with only intermittent small stretches of deep water pools and reservoirs upstream barrages. The banks of the entire river stretch up to Narora are sandy and muddy.

##### **Climate**

During the major part of the year the climate of the total river stretch is influenced largely by the prevalence of dry air, extreme temperatures in summer and winter. It is only during the monsoon months that air of oceanic origin reaches, bringing with it increased humidity, cloudiness and rain. Climatologically, the year may be divided into three seasons. The cold season, from about the end of November to the beginning of March, followed by the hot season, which continues till about the end of June where the south-west monsoon arrives. The monsoon season lasts until September and the next two months forming the transitional period.

##### **Hydrology**

Between Brijghat and Narora, both the banks are embanked with boulders to check erosion. The depth varies between 300-362 cm. and transparency ranges between 3-5 cm during monsoon season.

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#### **15. Physical features of the catchment area:**

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Ganga rises at 7,010 meters in Gangotri, Uttar Kashi District, Uttar Pradesh, on the Southern slopes of the Himalayan range. It flows through three different States - Uttar Pradesh, Bihar and West Bengal covering a distance of 2,525 km before it joins the Bay of Bengal.

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#### **16. Hydrological values:**

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

During dry season the stretch has low quantity of water with a depth ranging from 50 cm to 150 cm.

Irregular water flow from the reservoirs in the upper reaches and inconsistent rainfall in the area are responsible for the irregular flow of the Ganga River. The discharge record from the barrages shows a regular fluctuation in the water level causing disturbance to the natural habitat of different aquatic animals.

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## 17. Wetland Types

### a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

**Marine/coastal:** A • B • C • D • E • F • G • H • I • J • K • Zk(a)

**Inland:** L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va •  
Vt • W • Xf • Xp • Y • Zg • Zk(b)

**Human-made:** 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

### b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

**Tp, Ts, Xf, 3, 4, 6, 9**

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## 18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

The total river stretch from Brijghat to Narora is classified into different habitat types depending on the nature of the bank and the river depth during the dry season. All the habitat types have been formed due to the presence of barrages, deep pools and shallow zones in the stretch.

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## 19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary*

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## 20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

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## 21. Social and cultural values:

e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

All the ways from Brijghat to Narora most of the ghats have religious importance. Large number of pilgrims use the river water for holy bath, cremation and post cremation activities. Overpopulation in the area in the recent years and subsequent population pressure for ritual activities has caused major pollution in the river.

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## 22. Land tenure/ownership:

(a) Within the Ramsar site:

Government Undertaking  
(b) In the surrounding area:  
Private and Government.

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**23. Current land (including water) use:**

(a) Within the Ramsar site:

Irrigation, fishing, pilgrimage, mass religious bathing and post cremation activity.

(b) In the surroundings/catchment:

Agriculture and Grazing, Nesting and basking ground for Turtles and crocodiles.

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**24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:**

(a) Within the Ramsar site:

- Sewage discharge between Anupsahar & Narora.
- Pesticides and fertilizers were also leached into the river through agriculture runoff from the bank-side agricultural fields
- Mass bathing by Pilgrims during various festivals
- Post cremation rituals
- Washing of cloths at various sites were also recorded
- Large scale fishing activities

(b) In the surrounding area:

- Agricultural activities on the river bank side.
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**25. Conservation measures taken:**

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

There is no protected area created in the stretch from Brijghat to Narora to save the endangered species. To save the dolphins and other animals including endangered species, the Government of India have included these species in the Schedule I of the Wildlife (Protection) Act 1972. The Act prohibits killing/trapping of the species. The Ganges dolphin was also listed in Appendix II of the Convention of International Trade in Endangered Species of wild fauna and flora (CITES).

Major threats identified in the river stretch includes: Pollution, Soil erosion and Fishing. WWF-India is carrying out the following activities to address the threats:

1) Lobby with the Government to install Sewage treatment Plant at Anupsahar to reduce the domestic sewage. Motivating the villagers to reduce the use of chemical fertilizers and pesticides in the fields to control the Agricultural pollution. (It should be noted that significant reduction of agricultural pollutant has been recorded in this stretch.)

2) Plantation activities are carried out regularly along the bank of the river to minimize the soil erosion. (Last year we planted 3000 plants and this year 10,000 plants is to be planted along the bank in village Farida to check the soil erosion)

3) Lobbying with the Government to ban leasing of commercial fishing in this area. Out of six districts in this area (both bank of the river stretch) three districts has already issued notice to ban leasing on commercial of fishing.

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**26. Conservation measures proposed but not yet implemented:**

e.g. management plan in preparation; official proposal as a legally protected area, etc.

Already proposed for a status of wildlife sanctuary but yet not declared.

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**27. Current scientific research and facilities:**

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

WWF-India has involved in regular monitoring of the stretch since 1997. Before that 1991 to 1995 Jiwaji University, Gwalior has conducted the research on Bio-monitoring of the stretch Under the Ganges River Dolphin project. WWF-India is conducting annual surveys to monitor the dolphin population of the stretch. Beside river dolphins, data are also collected on the status of other aquatic biodiversity present in the stretch such as crocodiles, turtles and aquatic birds. Data related to the hydrology and other biology of the river stretch is also recorded regularly. These data are regularly been updated in the satellite imagery (GIS maps). Along with this Education & Awareness Programme is conducted to address different target groups like students, villagers and fishermen communities. Education materials were prepared and awareness created by giving regular, lectures, slide shows, presentation and through street play. Measures have been taken to mitigate the identified threats in this habitat with the help of local NGO's, State Forest Department and other relevant Government Departments.

WWF-India has established a field office to carry out day to day research work and related activities in the river stretch and coordinating the work with NGO's, villagers and various Government departments.

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**28. Current conservation education:**

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

WWF India has regularly conducted education and Conservation since last 5 years under the Dolphin conservation programme. This training programme is conducted to train also the local NGO's, Government officials and local club members related to conservation aspects of the river stretch.

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**29. Current recreation and tourism:**

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

This stretch is intensively used by pilgrims for mass bathing during festive season and post cremation activities.

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**30. Jurisdiction:**

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

Under the State Irrigation Department and District administration authorities.

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**31. Management authority:**

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Chief Engineer,  
U.P. State Irrigation Department,  
Lucknow, Uttar Pradesh, India.

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**32. Bibliographical references:**

scientific/technical references only. If biogeographic regionalisation scheme applied (see 13 above), list full reference citation for the scheme.

Anderson, J. 1878. Anatomical and Zoological researches. Comprising an account of the Zoological result of the two expedition to western Yamuna in 1868 and 1875 and a monograph of the two cetacean genera, *Platanista* and *Orcaella*, Vol. I B. Quoritch, London, 550 P

Behera, S.K. 1995. "Studies on Population Dynamics, Habitat Utilisation and Conservation Aspects of Gangetic Dolphin (*Platanista gangetica*)", PhD thesis.

Jones, S. 1982. The present status of the Ganges river susu, *Platanista gangetica* with comments on the Indus susu. *P. minor*. Mammals of the seas. *FAO Fisheries series No. 5 Vol. IV, FAO, Rome*.

Murti, C.R. Bilgrami, K. S. Das, T.M. and Mathur, R.P. 1991. The Ganga. A Scientific study. *Publ. Northern, Book Centre, New Delhi*.

Rao, R.J. 1995. Studies on Biological restoration of Ganga river in Uttar Pradesh: an indicator species approach. Final technical report, Project No. J-11013/10/92 GPD.

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**Appendix 1 A****Annual River Dolphin Status and Bio- Diversity Survey in Upper Ganga River.****BIRD DATA**

Sl No.	Common name	Narora to Anupshahr	Anupshahr to Avantika	Avantika to Brigghat
1.	Great Crested Grebe			
2.	Large Cormorant			
3.	Little Cormorant			
4.	Darter			
5.	Large egret			
6.	Cattle Egret			
7.	Little Egret			
8.	Purple Heron			
9.	Grey Heron			
10.	Open bill stork			
11.	White necked Stork			
12.	Black necked Stork			
13.	Black Stork			
14.	Ruddy Shell Duck			
15.	Nakta / Comb Duck			
16.	Pintail Duck			
17.	Common Teal			
18.	Spot bill Duck			
19.	Shoveller			
20.	Gadwall			
21.	Mallard			
22.	Red crested Pochard			
23.	Common pochard			
24.	Tufted Pochard			
25.	Scaup Duck			
26.	Cotton teal			
27.	Garganey teal			
28.	Pariah Kite			
29.	Black winged Kite			
30.	Marsh Harrier			
31.	Osprey			
32.	Marsh Harrier			
33.	White scavenger vulture			
34.	White backed Bengal Vulture			
35.	Common peafowl			
36.	Saras Crane			
37.	Coot			
38.	White Breasted water hen			
39.	Indian Moorhen			
40.	Black winged stilt			



41.	Pied Avocet			
42.	Spur winged plover			
43.	Great Stone plover			
44.	Red wattled lapwing.			
45.	Platincole			
46.	Northern Lapwing			
47.	Wimbrel			
48.	Black tailed godwit			
49.	Marsh Sandpiper			
50.	Redshank			
51.	Common sandpiper			
52.	Terek Sandpiper			
53.	Little ringed plover			
54.	Indian Skimmer			
55.	Black headed Gull			
56.	Great Black headed Gull			
57.	River Turn			
58.	Black belled turn			
59.	Rose ringed parakeet			
60.	Crow pheasant			
61.	Indian Great Horned Owl			
62.	Spotted Owlet			
63.	House swift			
64.	Pied Kingfisher			
65.	White breasted Kingfisher			
66.	Little blue kingfisher			
67.	Crested lark			
68.	Sand lark			
69.	Swallow			
70.	Wire tailed swallow			
71.	Bank Myna			
72.	Indian Myna			
73.	Black headed Myna			
74.	Blue throat.			
75.	Indian Robin			
76.	Redstart			
77.	Bush chat			
78.	Grey Wagtail			
79.	Yellow Wagtail			
80.	White Wagtail			
81.	Finn Baya			
82.	Red Munia			
83.	Black headed Munia			

**Appendix 1 B. Birds species observed in Upper Ganga river from Narora to Brajghat**

<b>FAMILY</b>	<b>COMMON NAME</b>	<b>SCIENTIFIC NAME</b>
PODICIPITIDAE	Little grabe	<i>Tachybaptus ruficollis</i>
	Great crested grabe	<i>Podiceps cristatus</i>
PELECANIDAE	Grey pelican	<i>Pelecanus philippensis</i>
PHALACROCORACIDAE	Indian Shag	<i>Phalacrocorax fuscicollis</i>
	Large cormorant	<i>Phalacrocorax carbo</i>
	Little cormorant	<i>Phalacrocorax niger</i>
	Darter	<i>Anhinga rufa</i>
ARDEIDAE	Grey Heron	<i>Ardea dinerea</i>
	Pond Heron	<i>Ardeolagravii</i>
	Cattle Egret	<i>Bubulcus ibiss</i>
	Little Egret	<i>Egretta garzetta</i>
	Large Egret	<i>Egretta alba</i>
CICONIIDAE	Intermediate Egret	<i>Egretta intemedia</i>
	White necked Stork	<i>Ciconia episcopus</i>
	Black necked Stork	<i>Zzenorhynchus asiaticus</i>
	Black Stork	<i>Ciconia nigra</i>
	Open billed	<i>Anastomus oscitans</i>
THRESKIORNITHIDAE	Spoon bill	<i>Platalea ieucorodia</i>
ANATIDAE	Bar headed goose	<i>Anser indicus</i>
	Grey leg goose	<i>Anser anser rubirestries</i>
	Brahmini Duck	<i>Tadorna ferruginea</i>
	Tufted duck	<i>Aythya fuligula</i>
	Pintail	<i>Anas acuta</i>
	Common Teal	<i>Anas crecca</i>
	Cotton Teal	<i>Nettapus coromandelianus</i>
	Red crested pochard	<i>Netta rufina</i>
	Common pochard	<i>Aythya terina</i>
	Shoveller	<i>Anas clypeata</i>
	Gad wall	<i>Anas sstrepera</i>
	Garganey	<i>Anas querouedula</i>
	Wigeon	<i>Anas peneelope</i>
	Spotbill Duck	<i>Anas poecilorhyncha</i>
Comb Duck	<i>Sarkidiornis melanotos</i>	
ACCIPITRIDAE	Blackwinged kite	<i>Elanus caeruleus</i>
	Pariah kite	<i>Milvus migrans</i>
	Brahminy kite	<i>Haliastur indus</i>
	Shikra	<i>Accipiter badius</i>
	Indian white backed vulture	<i>Gyps bengalensis</i>
	Scavenger vulture	<i>Neophron percnopterus</i>
	Ringed tailed fishingeagle	<i>Halioeetus leucaryphus</i>
PHASIANIDAE	Common peafowl	<i>Pavo cristatus</i>
GRUIDAE	Sarus Crane	<i>Grus antigone</i>
	Common Crane	<i>Grus grus</i>
RALLIDAE	Whitebreasted Waterhen	<i>Amaurornis phoenicurus</i>
	Moorhen	<i>Gallinula chloropus</i>
	Coot	<i>Fulica atra</i>
RECURVIROSTRIDAE	Black winged Stilt	<i>Himantopus himantopus</i>
	Pied Avocet	<i>Recurvirostra avosetta</i>
BURHINIDAE	Stone curlew	<i>Burhinus oedicnemus</i>

	Great stone Plover	<i>Esacus magnirostris</i>
	Small Indian Pratincole	<i>Glareola lactera</i>
CHARADIIDAE	Red wattled Lapwing	<i>Venellus indicus</i>
	Little Ringed Plover	<i>Charadrius dubius</i>
	Kentish Plover	<i>Charadrius alexandrinus</i>
	Spur Winged Plover	<i>Vanellus spinosus</i>
	Western curlew	<i>Numenius arquata</i>
	Red shank	<i>Tringa totanus</i>
	Common Sandpiper	<i>Tringa hypoleucos</i>
LARIDAE	Brown headed gull	<i>Larus brunnicephalus</i>
	Black headed gull	<i>Larus ridibundus</i>
	Indian River Tern	<i>Sterna aurantia</i>
	Black bellied Tern	<i>Sterna acuticauda</i>
	Little Tern	<i>Sterna albifrons</i>
COLUMBIDAE	Blue Rock Pigeon	<i>Columba livia</i>
	Indian Ring Dove	<i>Streptopelia decaocto</i>
	Red Turtle Dove	<i>Sterptopelia tranquebarica</i>
PSITTACIDAE	Rose ringed Parakeet	<i>Psittacula krameri</i>
CUCULIDAE	Crow-Pheasant	<i>Centropus sinensis</i>
STRIGIDAE	Brown Fish Owl	<i>Bubo zeylonensis</i>
APODIDAE	House swift	<i>Apus affinis</i>
ALCEDINIDAE	White breasted Kingfisher	<i>Halcyon smyrnensis</i>
	Pied Kingfisher	<i>Ceryle rudis</i>
MEROPIDAE	Blue tailed Bee-eater	<i>Merops philippinus</i>
	Green Bee-eater	<i>Merops orientalis</i>
CORACIIDAE	Indian Roller	<i>Coracias benghalensis</i>
UPUPIDAE	Hoopoe	<i>Upupa epops</i>
ALAUDIDAE	Red winged Bush Lark	<i>Mirafra erythroptera</i>
	Rufous tailed Finch Lark	<i>Ammomanes phoenicurus</i>
HIRUNDINIDAE	Swallow	<i>Hirundo rustica</i>
	Red rumped Swallow	<i>Hirundo daurica</i>
LANIIDAE	Brown shrike	<i>Lanius cristals</i>
	Grey shrike	<i>Lanius excubitor</i>
	Rufous backed Shrike	<i>Lanius schach</i>
DICRURIDAE	Black Drongo	<i>Dicrurs adsimillis</i>
STURNIDAE	Black headed Myna	<i>Sturnus pagodarum</i>
	Pied Myna	<i>Sturnus contra</i>
	Common Indian Myna	<i>Acridotheres oristis</i>
	Bank Myna	<i>Acridotheres ginginianus</i>
CORVIDAE	Indian Tree Pie	<i>Dendrocitta vagabunda</i>
	House crow	<i>Corvus splendens</i>
	Jungle Crow	<i>Corvus macrorhynchos</i>
PYCNONOTIDAE	Red vented Bulbul	<i>Pycnonotus cafer</i>
MUSCICAPIDAE	Common Babbler	<i>Turdoides caudatus</i>
	Large Grey Babbler	<i>Turdoides malcolmi</i>
	Magpie robin	<i>Copsychus saularis</i>
	Indian Robin	<i>Saxicoloides fulicata</i>
MOTACILLIDAE	Grey Wagtail	<i>Motacilla cinerea</i>
	Large pied wagtail	<i>Motcilla maderaspatensis</i>
PLOCEIDAE	House Sparrow	<i>Passer domesticus</i>

**Appendix 2. List of fishes identified from Brijghat to Narora**

<b>FAMILY</b>	<b>SCIENTIFIC NAME</b>
CLUPEIDAE	<i>Gudusia chapra</i>
NOTOPTERIDAE	<i>Notopterus chitala</i>
	<i>N. notopterus</i>
CYPRINIDAE	<i>Amblypharyngodon mola</i>
	<i>A. melettinus</i>
	<i>Barilus bola</i>
	<i>B. barila</i>
	<i>B. modestus</i>
	<i>B. vagra</i>
	<i>Chela laobuca</i>
	<i>Catla catla</i>
	<i>Tor tor</i>
	<i>Tor putitora</i>
	<i>Cirrhinus reba</i>
	<i>C. mrigala</i>
	<i>Crossocheilus latius</i>
	<i>Danio devario</i>
	<i>D. dangila</i>
GOBITIDAE	<i>Botia dario</i>
	<i>Nemochilus botia</i>
	<i>N. corica</i>
	<i>N. bevasni</i>
	<i>N. montanus</i>
	<i>N. zonatus</i>
	<i>N. scaturingina</i>
	<i>N. multifasciatus</i>
	<i>N. savena</i>
	<i>Lepidocephalichthys guntea</i>
ANABAUTIDAE	<i>Colisa lalius</i>
	<i>C. fasciata</i>
	<i>Anabas testudineus</i>
CENTROPOMIDAE	<i>Chanda ranga</i>
	<i>C. nama</i>
NANDIDAE	<i>Nandus nandus</i>
BADIDAE	<i>Badis badis</i>
MASTACEMBELIDAE	<i>Mastacembelus armatus</i>
	<i>M. punctatus</i>
	<i>M. acculatus</i>
BELONIDAE	<i>Xenentodon cancila</i>
GOBIIDAE	<i>Glossogobius giuris</i>
	<i>D. rerio</i>
	<i>Gara gotyla</i>
	<i>Gara prshadi</i>
	<i>Labeo rohita</i>
	<i>L. boga</i>
	<i>L. calbasu</i>

	<i>L. pangusia</i>
	<i>L. goniuis</i>
	<i>Osteobrama cotio</i>
	<i>Oxygaster bacaila</i>
	<i>O. boopis</i>
	<i>Puntius sophore</i>
	<i>P. ticto</i>
	<i>P. chola</i>
	<i>P. sarana</i>
	<i>Laubuca atper</i>
	<i>Rasbora daniconius</i>
SILURIDAE	<i>Ompok bimaculotus</i>
	<i>O. pabda</i>
	<i>Wallago attu</i>
BAGRIDAE	<i>Mystus vittatus</i>
	<i>Mystus seenghala</i>
	<i>M. cavasius</i>
	<i>M. oar</i>
	<i>M. tangara</i>
	<i>M. bleekeri</i>
	<i>Rita rita</i>
SISORIDAE	<i>Bagarius bagarius</i>
	<i>Nangra nangra</i>
CHASCIDAE	<i>Chaca chaca</i>
SCHILBEIDAE	<i>Ailia colia</i>
	<i>Clupisoma garua</i>
	<i>Eutropiichthys vacha</i>
PANGASIDAE	<i>Pungasium pungasius</i>
HETEROPNEUTIDAE	<i>Heteropneustes fossilis</i>
CLARIIDAE	<i>Clarias batrachus</i>
	<i>C. magur</i>
OPHIOCEPHALEDAE	<i>Channa gachua</i>
	<i>C. marulius</i>
	<i>C. punctatus</i>
	<i>C. striatus</i>
	<i>C. slewartii</i>

### Appendix 3. List of Fresh Water Turtles found from Narora to Brijghat

Species	Source
<i>Geoclemys hamiltonii</i>	Rao, R.J. 1995
<i>Hardella thurjii</i>	Rao, R.J. 1995
<i>Kachuga kachuga</i>	Present study
<i>Kachuga dhongoka</i>	Present study
<i>Kachuga smithii</i>	Present study
<i>Kachuga tecta</i>	Present study

<i>Kachuga tentoria</i>	Present study
<i>Melanochelys trijuga</i>	Rao, R.J. 1995
<i>Lissemys punctata</i>	Rao, R.J. 1995
<i>Aspideretes gangeticus</i>	Present study
<i>Aspideretes hurum</i>	Rao, R.J. 1995
<i>Chitra indica</i>	Present study