Government of the People's Republic of Bangladesh
Ministry of
Housing and Public Works Urban Development Directorate

3rd Season Field Survey Report on

an Inventory of Existing flora and Fauna

Project title:

FLORA AND FAUNA SURVEY UNDER "PREPARATION OF DEVELOPMENT PLAN FOR MEHERPUR DISTRICT

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1. Introduction

1.1 Project Background

Bangladesh is not only the world's fastest-growing populous country, but also a country with immense potential in the near future. As the world's population grows, so does urbanization. Without suitable standards, it is difficult to manage the developing urban areas as a result of urbanization. Urbanization includes the expansion of houses and other infrastructure. Nobody can deny that the housing and infrastructure situation in metropolitan areas is deteriorating day by day. It must be arranged in order to be properly guided. Meanwhile, the honorable Prime Minister issued significant instructions for the country's spatial and sectoral planning at different levels. Bangladesh is one of the world's most densely populated countries, and it has had tremendous population increase over the last century, however the rate of growth has recently slowed to a reasonable level. Over the next decade, the country will see a rapid development of urbanization. According to an estimate, by 2020, nearly every other man, woman and child will live in an urban area (World Bank ed., Bangladesh 2020). Bangladesh's urban population has been growing at a yearly average rate of 6 percent since independence, at a time when the national population growth was 2.2 percent. As a result, urban population has grown six-fold, compared with a 70 percent increase in rural population (World Bank, 2007). As per recent UN data, approximately 25 percent of Bangladesh's current population currently lives in urban areas. Of this urban population, more than half lives in the four largest cities: Dhaka, Chittagong, Khulna and Rajshahi.

Urbanization refers to the increase in the number of people living in urban areas such as towns and cities. In the course of urbanization, urban expansion is unavoidable. People in Bangladesh are increasingly preferring to reside in and around cities and towns in recent years. People in our country primarily migrate from rural to cities in pursuit of a variety of opportunities. Urbanization, on the other hand, is frequently used as an indicator of development. Unplanned urbanization, on the other hand, poses a hazard to developing countries like Bangladesh. Bangladesh's urbanization has recently been complicated by a number of new issues. Such growing difficulties, as well as their impact, can be mitigated with proper planning and actions. Bangladesh would undoubtedly attain its targeted sustainable urban growth goal through planned urbanization. In 2008, humankind has crossed a socio-demographic milestone for the first time in history by having half of its population living within the urban areas (UNFPA, 2007). In developing countries, urbanization has now become a powerful force. Cities are important drivers of growth and development, providing jobs, infrastructure, and services. With the unplanned expansion, the growing number of people, assets, and economic activities increase the exposure of cities to the impacts of disasters and climate change. However, in low and lower-middle income countries, new urban development is increasingly more likely to occur on hazard-prone land, namely in floodplains and other low-lying areas, along fault lines, and on steep slopes. In addition to settling in hazard-prone areas, much of the building construction that occurs is unregulated and unplanned, placing vulnerable populations, who settle on hazard-prone land, at increased risk. Besides, poor urban governance, declining ecosystems,

and vulnerable rural livelihoods are among the main underlying risk drivers, which need to be addressed to build safer cities. Bangladesh has been experiencing a rapid increase in its urban population ever since its independence in 1971.Urban population as a percentage of total population increased from around 8.8% to nearly 23% during the 1974-2011 periods. It is estimated that by the year 2021 nearly one-third or 33% of the population of Bangladesh will be living in urban areas. More than 60% of the national GDP is derived from non-agricultural sectors that are mainly based in urban areas. This phenomenon indicates the increasing role of urban areas being played in the national economy.

Upazila Parishad is the lowest administrative level of local government in Bangladesh. The majority of Upazila Parishads are still unable to achieve planned rural-urban development, which involves physically and socioeconomically integrating rural and urban areas. Most of the time, land is used haphazardly, resulting in a low level of living for the population. In the present government's policy for administrative reorganization, the upazila is the most important tier of administration. In light of the foregoing, a comprehensive development plan is required to handle the mandatory land use transition in both urban and rural areas, while avoiding unauthorized and unplanned development. A comprehensive development strategy at the Upazila level appears to be necessary.

Urban Development Directorate under the Ministry of Housing and Public Works, has launched a project titled "Preparation of Development Plan for Meherpur Zilla Project". This initiative aims to formulate a development plan for the next 20 years, divided into essential sectors to create a risk-sensitive and sustainable strategy. To understand the socio-economic and demographic profile of the study area is pivotal step for understanding the immediate needs and forecast the future needs for the next 20 years. Existing data and features are instrumental in providing a clear spatial understanding of the project area, accurately reflecting the potentials and problems of the existing scoria economic related conditions, and facilitating the representation within the development plan. Overall, the scope of socio-economic project signifies a comprehensive and forward-looking approach to urban development, emphasizing sustainability and thoughtful planning over the next two decades.

Existing Flora and Fauna survey is one of the important development modules of this project. In this development plan, existing Floral and Faunal information is considered as an important tool for a durable and sustainable urbanization. Land use planning is an important component for a modern urban development. But practicing urban development using a proper land use plan is not developed in Bangladesh. Prior to land use planning it is very essential to access existing Flora and Fauna conditions and the relevant information in and around the site of future urban development. Therefore, a rigorous Flora and Fauna study is needed to carry out for a resilient urban development.

1.2 Description of the Study Area

Meherpur Zilla, located in the southwestern part of Bangladesh, holds a significant place in the country's history and culture. Known for its rich heritage and pivotal role in the liberation war, Meherpur continues to thrive with its diverse economy, agricultural abundance, and growing infrastructure. This proposal aims to highlight the key aspects of Meherpur Zilla, focusing on its socio-economic landscape, cultural heritage, and potential for future development. The district comprises three Upazilas: Meherpur Sadar, Mujibnagar, and Gangni. Meherpur Sadar serves as the administrative and economic hub, with a diverse economy primarily based on agriculture and trade. Mujibnagar, formerly Bhoborpara, is renowned for its historical importance in the Liberation War, attracting many tourists to its memorial complex. Gangni Upazila is notable for its vibrant agricultural activities and emerging industrial potential. Collectively, these Upazilas contribute to the district's cultural richness, economic diversity, and historical legacy, positioning Meherpur Zilla as a region of significant importance and development potential in Bangladesh.

Meherpur Zilla is bordered by Kushtia to the east, Chuadanga to the south, and the Indian state of West Bengal to the west and north, situated in the Khulna Division. The district's strategic location offers significant advantages for cross-border trade and cultural exchange. The district is predominantly rural, with a diverse population comprising various ethnic and religious communities. The literacy rate is gradually improving, with ongoing efforts to enhance educational facilities and opportunities.

a) Gangni Upazila

Gangni Upazila (Meherpur district) area 363.95 sq km, located in between 23°44' and 23°52' North latitudes and in between 88°34' and 88°47' East longitudes. It is bounded by Daulatpur (Kushtia) upazila on the North, Alamdanga and Meherpur Sadar upazilas on the South, Daulatpur (Kushtia), Mirpur (Kushtia) and' Alamdanga upazilas on the East, Meherpur Sadar upazila and West Bengal state of India on the West.

Saldah Beel, Gangni, Meherpur

Population Total 299607; male 148250, female 151357; Muslim 295458, Hindu 2726, Christian 1313 and others 110. Water bodies Main rivers: Bhairab, Ichamati, Mathabhanga and Kazla; Elangi Beel, Nuner Beel and Elalgari Damash Beel are notable. Administration Gangni Thana was formed in 1923 and it was turned into an upazila on 24 February 1984.' Gangni Upazila consist of one Municipality, 9 Unions, 90 Mouzas and 137 Villages.

b) Meherpur Sadar Upazila

Meherpur Sadar Upazila (Meherpur district) area 276.15 sq km, located in between 23°40' and 23°52' North latitudes and in between 88°34' and 88°47' East longitudes. It is bounded by Gangni upazila and West Bengal state of India on the North, Damurhuda and Mujibnagar upazilas on the South, Gangni and Alamdanga upazilas on the East, West Bengal state of India on the West.

Saldah Beel, gangni, Meherpur.

Population Total 256642; male 127300, female 129342; Muslim 252323, Hindu 4199, Buddhist 1, Christian 114 and others 5. Water bodies Main rivers: Bhairab, Kazla; Bhatgari and Chand Beels are notable. Administration Meherpur Thana was turned into an upazila in 1984. Meherpur Municipality was formed in 1960. Meherpur Sadar consist of one Municipality, 5 Unions, 61 Mouzas and 104 Villages.

c) Mujibnagar Upazila

Mujibnagar Upazila (Meherpur district) area 111.51 sq km, located in between 23°36' and 23°45' North latitudes and in between 88°34' and 88°43' East longitudes. It is bounded by Meherpur Sadar upazila on the North, Damurhuda and Meherpur Sadar upazilas on the East, West Bengal of India on the South and on the West.

Population Total 99143; male 49084, female 50059; Muslim 92970, Hindu 945, Buddhist 13, Christian 5200 and others 15. Water bodies Bhairab River, Sarashati Canal and Datpur Beel are notable. Administration Mujibnagar upazila was formed on 24 February 2000. Mujibnagar Upazila consist of 4 Unions, 29 Mouza and 33 Villages.

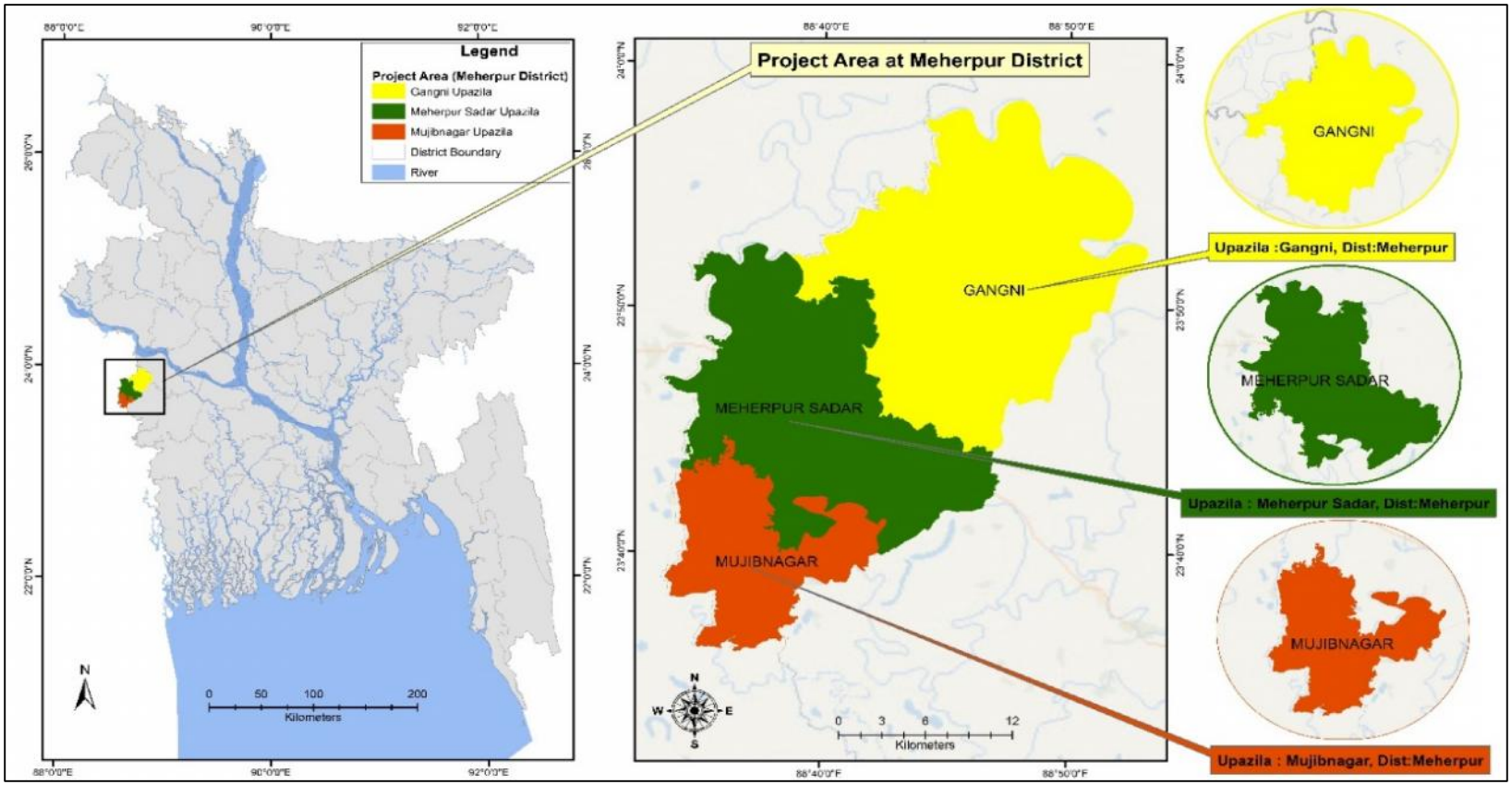


Figure 1-1: Location map of project area of Meherpur District.

1.3 Aims and Objectives

The baseline survey of existing flora and fauna will be conducted in project area of 3 upazilas of Meharpure district; i) Meherpur Sadar upazila, ii) Mujibnagar Upazila, and iii) Gangni Upazila.

Objectives:

Main objectives of the project:

The objective of the project is to optimize resources and activities for sustenance of marginal people. The urban and rural activities and resources are very important to the economy and life of the people of Bangladesh whose living conditions are inextricably linked to the productivity and sustainability of land use. There is no long-term Holistic Development Plan for the rural and urban area but it needs to be integrated with the mainstream of development process of the country. So, an interdisciplinary development planning approach is urgent to optimize livelihood of the project area.

Specific objectives of present study as per scope of work:

Baseline survey of existing flora and fauna in different place of the study area will be conducted to attain the following objectives:

- To develop an understanding of the existing flora and fauna based on available information, data gathering, literature searches, site visits and any baseline studies already carried out;
- To make an inventory of the species that are present on the spatial level of the survey and also the species that are frequent and also which are rare
- To identify the autecological characteristics, they possess and the communities they form
- To identify the characteristics and physical conditions of the sites that form their habitats
- To explore Historical aspects of habitats and biodiversity in the area
- To determine Underlying process of habitats dynamism — char formation, afforestation, forest clearing, settlements, growth centers, dykes, land reclamation, drainage system improvement, etc.
- To determine a threshold for selecting existing flora and fauna, based on their value, using measures;
- To identify those flora and fauna reaching the threshold value which could be affected by the project;
- To identify the spatial arrangements of habitats and the key processes that lead to the decline of endangered species (e.g., Fallowing, eutrophication, disturbance, intensification etc.)

- To determine the species including their habitat that might be threatened due to future development
- To identify the factors affecting the integrity of the existing flora and fauna in the ecosystems and the conservation status of relevant habitats and species;
- To set forth recommendations on preserving the species of the project area and ecology sensitive land use planning to keep the ecological system sustainable.
- To develop an interactive digital model for the ecological system for the project area

2. Methodology

2.1 An Inventory of the Flora and Fauna

Literature review was conducted to know the historical aspects of spatial distribution of habitats or species and compile habitat or species inventories on various scales, and also recognize the pattern of rarity. Status of habitats will also be known. Information of the underlying process of decline or increase can be achieved by an historical landscape analysis. Maps with the historical distribution of habitats from these sources should be drawn in the same resolution as the actual distribution. In addition to the secondary sources, primary data on existing flora and fauna will be collected using appropriate methods.

2.2 The comparative assessment of plant and animal communities

The comparative assessment of animals and plants has been conducting. Dependency of animals on particular plant species will be determined. Seasonal assemblage of animals in a particular habitat based on the phenology of the plant will be determined. Survey will be conducted in different seasons; thus, seasonal assemblage of flora and fauna will also be determined. All the information will be plotted on habitat map.

2.3 Sampling Technique for Inventory

To achieve the objectives of the project various methods will be used (Table 1).

Table 1. Survey methods in brief

Name of the Methods	Objectives to be fulfilled
Survey Methods for Flora	
1. Literature Review **2. Transect survey** **3. Quadrat survey** 4. **Point Quarter Method** **5. Collection of plant parts**	) To understand the existing floral distribution scenario and their significances in the ecosystem of the project area based on available secondary information from any baseline studies which already been carried out previously.) To prepare an inventory list of the species of the existing flora, their spatial distribution, the species that are frequent and also which are rare.) To identify the ecological characteristics of every ecological unit and the communities they form.) To identify the characteristics and physical conditions of the habitats.) To determine underlying process of habitats dynamism-char formation, afforestation, forest clearing, settlements, growth centers, dykes, land reclamation, drainage system improvement, etc.
6. Questionnaire Survey	) To explore historical aspects of habitats and biodiversity in the area.
Survey Methods for Fauna	
Direct Survey Methods 1. Line Transect Sampling 2. Quadrat Sampling 3. Use of different types of traps 4. Counting at colonies and bat roosts	) To understand the existing faunal distribution scenario and their significances in the ecosystem of the project area based on available secondary information from any baseline studies which already been carried out previously.

Name of the Methods	Objectives to be fulfilled
5. Night survey 6. Camera trap survey 7. Questionnaire survey 8. FGD 9. Boat Survey through river system or lake for aquatic animals 10. Survey on fish **Indirect Survey Methods** 1. Pellet / scat / feces count 2. Footprint / Pugmark count 3. Other indices of presence	⁾ To prepare an inventory list of the species of the existing fauna, their spatial distribution, the species that are frequent and also which are rare. ⁾ To identify the ecological characteristics of every ecological unit and the communities they form. ⁾ To identify the characteristics and physical conditions of their habitats. ⁾ To determine underlying process of habitats dynamism-char formation, afforestation, forest clearing, settlements, growth centers, dykes, land reclamation, drainage system improvement, etc. ⁾ To identify the flora and fauna reaching the threshold value which could be affected by the project. ⁾ To identify the threats to the endangered species (e.g., Fallowing, eutrophication, disturbance, intensification). ⁾ To determine the species including their habitat that might be threatened due to future development. ⁾ To set forth recommendations on preserving the species of the project area and ecology sensitive land use planning to keep the ecological system sustainable. ⁾ To develop an interactive digital model for the ecological system for the project area.

2.4 Detailed Survey Methods

i. Survey methods for flora

Plant community will be studied by following different methods. Parameters like frequency, density, abundance, presence, absence and dominance, diversity index will be quantified.

a) Transect survey

Transect survey will be used to explore the existing floristic composition. Sample of the plant species will be collected to prepare herbarium in order to identify the plant species wherever necessary. The floristic composition includes the occurred species of under trees, shrubs, herbs, climbers, epiphytes, parasites and ferns.

b) Quadrat survey

The quadrat survey will be used for assessing plant community structure, tree species diversity and their regeneration status. The estimate of species contents of a habitat shall be determined by observing the plant species at different sample areas.

ii. Survey methods for fauna

A combination of different methods will be applied for the project work. Some of the methods are as follows.

Direct Survey Methods

a) Line Transect Sampling

Both temporary and permanent transect lines were set randomly covering all types of habitats. Visual encounter survey was conducted on foot both in day and night. All the wild animals were recorded from the both side of transect. GPS coordinates were used to calculate

the total transect area covered for survey. During river habitat survey, the river was considered as a transect line. A total of 14 transect lines including 6 transects in Meherpur sadar, 6 transects in Gangni and Mujibnagar each were selected for the study (Map 2, Table 2).

Table 2 List of transects used for data collection

Upazila	Transect	Habitat	Length (Km)
Meherpur Sadar	Transect 1	Riverside/Riverine	8.92
	Transect 2	Homestead	3,41
	Transect 3	Homestead	5.6
	Transect 4	Agricultural	10.4
	Transect 5	Riverside/Riverine	3.5
	Transect 6	Riverside/Riverine	8.7
Gangni	Transect 1	Riverside/Riverine	2.8
	Transect 2	Homestead	2
	Transect 3	Homestead	1.3
	Transect 4	Agricultural	2.5
Mujibnagar	Transect 1	Homestead	3.4
	Transect 2	Homestead	4.6
	Transect 3	Riverside/Riverine	5.3
	Transect 4	Agricultural	7.3

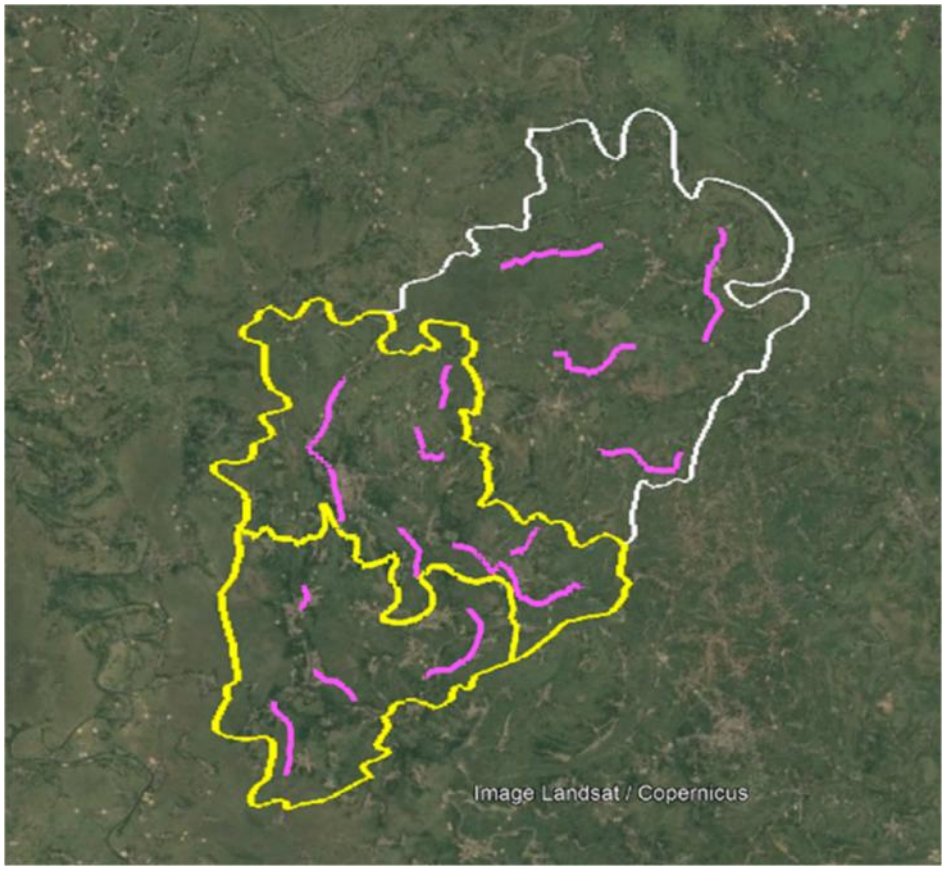


Figure 2. Line transects set up in different habitats of the study area based on field survey data)

b) Use of different types of traps

Pit fall trap, tube trap and box trap will be used to capture cryptic species. All these traps are designed to capture live animals. Appropriate baits were used wherever necessary.

c) Counting at colonies and bat roosts

Bats and some of the birds are colonial and some also build nests in colonies. Bird colony and bat roosts were surveyed.

d) Night survey

Night survey were conducted with the aid of high-power flashlight. Nocturnal wild animals were encountered during night survey.

e) Camera trap

Automatic digital camera traps were used to survey nocturnal and crepuscular animals. These camera traps are operated by motion sensor. The camera were automatically activated and captured photos if anything moves in front of it.

Camera trap setting at Kajla riverbed, Meherpur.

Questionnaire survey

A pre-designed questionnaire was used to know the status of wild animals and plants in the survey area based on the experience of the local people. A total of 50 questionnaire were surveyed among the local people of Meherpur district.

Questionnaire survey, Gourinagar, Mujibnagar, Meherpur

iii. River Habitat Surveys (RHS) & River Corridor Surveys (RCS) through Boat Survey for aquatic animals

Boat survey was conducted in suitable sites to encounter aquatic animals like dolphins. Images of dolphins were also be used as a questionnaire among the local fishermen to know the past status of these aquatic mammals.

Bamundi khal, Gangni Upazila, Meherpur

i. Survey on fishes

Local fishermen were visited to see their catch and types of available fishes. Local market were also be surveyed to know the status of local fish. Both marine and freshwater fisheries will be surveyed. The team members visited fish landing areas, fisher's village and local markets to learn about beneficiary's customs and attitudes. Direct observations and participation with the fishers for gear use, on-field surveillance, homestead drying of fishes, and selling at retail market of city, were the most useful and meaningful way to confirm the abundance and marketing of fishes, and to know about beneficiary's livelihood dynamics,

work practices, vulnerabilities, and their indigenous knowledge in a social setting (Hossain *et al.* 2014; Deb and Haque 2011).

Local fish market survey at Kachabazar, Meherpur sadar, Meherpur

Indirect Survey Methods

i. Presence of Scat, feces and pellet

Presence of scat, feces and pellet indicate the presence of certain species in the area.

ii. Footprint / Pugmark count

This method is used for identifying and counting wild animals. In addition, the data allow one to determine sex ratio and age structure of the population.

2.5 Identification of critical Species

During the survey any critical habitat (also why it is critical) and its significance needs to be identified, and protection status recorded in practice, a check of each individual species against the following were required in order to be to determine its protection status:

- IUCN's threatened category (Red Data Book-both National and global threatened category);
- Species protected under Wildlife (Protection and Security) Act 2012;
- Species protected under any protocol, conventions and any other agreement;
- Species considered as flagship species, keystone species or other significant species; and
- Endemicity of the species.

2.6 Identification of critical ecosystem and wildlife habitats

Habitats with high species diversity, population density of rare or threatened species were determined from the field survey. Ecosystem services were also be determined from field observation and also by questionnaire survey and FGD. Critical ecosystem or habitats were plotted on the maps using GPS coordinates.

2.7 Mapping of the Site

As per survey findings, we prepared ecosystem based thematic map for every task of the site of the flora and fauna in ARC GIS and prepare data base which can be provided as shape file or map format in desire scale by consultation with PD.

2.8 Development of an Interactive Digital Model

From GIS based data base of the survey findings and their interpretation were integrated in a GIS module and to develop an interactive digital model of existing habitat, decline of habitat and possible areas of conservation. Historical changes of vegetation cover were evaluated from the previous 30 years image. Land use map were prepared accommodating wildlife habitat, vegetation cover, waterbodies, forests and other landmarks.

2.9 Submission of Report

The final report includes clearly, information on existing flora and fauna necessary for decision making Key aspects which include:

- Description of baseline and trends of existing flora and fauna, if the project were not to go ahead;
- Explanation of the criteria used to evaluate existing flora and fauna, and assess the' significance of impacts of the project;
- Statement of methodology used:
- Presentation of analytical techniques used and the analysis itself; and interpretation from the analyses
- Identification of likely impacts on existing flora and fauna; and an explanation of their significance and the level of certainty with which this can. be stated; and
- Description of legal and policy consequences.

3. FINDINGS of Flora and Fauna

3.1 FLORA

A total 354 species of plants from different categories were recorded from the study area.

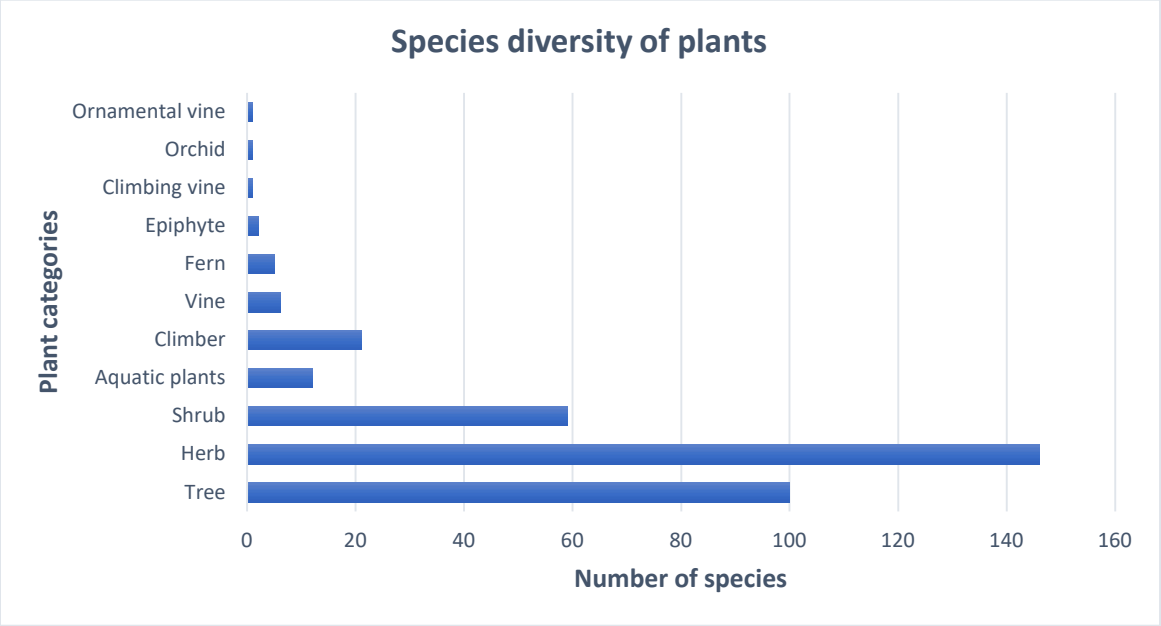


Figure3. Plant species diversity in three upazilas of Meherpur district

3.1.1 Trees

A total of 80 tree species were recorded from the study area.

Mango orchard at Mujibnagar upazila of Meherpur.

Table 3. List of trees distributed in three upazilas of Meherpur district

Sl. No	Botanical Name	Family	Frequency of occurrence	Growth form	Distribution
1	*Lannea coromandelica (Houtt.)*	Anacardiaceae	Common	Tree	Homestead
2	*Mangifera indica L.*	Anacardiaceae	Common	Tree	Homestead
3	*Spondias dulcis Parkinson*	Anacardiaceae	Common	Tree	Homestead
4	*Spondias pinnata (L. f.) Kurz*	Anacardiaceae	Common	Tree	Homestead
5	*Annona reticulata L.*	Annonaceae	Common	Tree	Homestead
6	*Polyalthia longifolia (Sonn.)*	Annonaceae	Very common	Tree	Homestead
7	*Alstonia scholaris (L.) R.Br.*	Apocynaceae	Rare	Tree	Homestead
8	*Cascabela thevetia (L.) Lippold*	Apocynaceae	Common	Tree	Roadside
9	*Plumeria rubra L.*	Apocynaceae	Common	Tree	Roadside
10	*Areca catechu L.*	Arecaceae	Common	Tree	Roadside
11	*Borassus flabellifer L.*	Arecaceae	Common	Tree	Roadside
12	*Calamus tenuis Roxb.*	Arecaceae	Common	Tree	Roadside
13	*Cocos nucifera L.*	Arecaceae	Rare	Tree	Roadside
14	*Phoenix sylvestris (L.) Roxb.*	Arecaceae	Very common	Tree	Roadside
15	*Bombax ceiba L.*	Bombacaceae	Common	Tree	Roadside
16	*Bauhinia purpurea L.*	Caesalpiniaceae	Common	Tree	Roadside
17	*Caesalpinia pulcherrima (L.) Sw.*	Caesalpiniaceae	Common	Tree	Roadside
18	*Cassia fistula L.*	Caesalpiniaceae	Common	Tree	Roadside
19	*Delonix regia (Hook.) Raf.*	Caesalpiniaceae	Common	Tree	Roadside
20	*Peltophorum pterocarpum (DC.)*	Caesalpiniaceae	Rare	Tree	Roadside
21	*Senna alata (L.) Roxb.*	Caesalpiniaceae	Common	Tree	Roadside
22	*Senna siamea (Lam.)*	Caesalpiniaceae	Common	Tree	Homestead
23	*Tamarindus indica L.*	Caesalpiniaceae	Common	Tree	Roadside
24	*Carica papaya L.*	Caricaceae	Common	Tree	Roadside
25	*Casuarina equisetifolia L.*	Casuarinaceae	Common	Tree	Roadside
26	*Calophyllum inophyllum L.*	Clusiaceae	Common	Tree	Homestead
27	*Garcinia cowa Roxb.*	Clusiaceae	Common	Tree	Homestead
28	*Combretum indicum (L.) DeFilipps*	Combretaceae	Common	Tree	Homestead
29	*Terminalia arjuna (Roxb.)*	Combretaceae	Very common	Tree	Homestead
30	*Terminalia bellirica (Gaertn.) Roxb.*	Combretaceae	Very common	Tree	Homestead
31	*Terminalia catappa L.*	Combretaceae	Common	Tree	Homestead
32	*Platycladus orientalis (L.) Franco Syn.*	Cupressaceae	Common	Tree	Roadside
33	*Diospyros discolor Willd.*	Ebenaceae	Common	Tree	Homestead
34	*Diospyros malabarica (Desr.) Kostel.*	Ebenaceae	Common	Tree	Homestead
35	*Elaeocarpus floribundus Blume*	Elaeocarpaceae	Common	Tree	Homestead
36	*Bischofia javanica Blume*	Euphorbiaceae	Common	Tree	Roadside
37	*Phyllanthus emblica L.*	Euphorbiaceae	Common	Tree	Homestead
38	*Ricinus communis L.*	Euphorbiaceae	Common	Tree	Homestead
39	*Butea monosperma (Lam.) Taub.*	Fabaceae	Common	Tree	Homestead
40	*Dalbergia sissoo DC.*	Fabaceae	Very common	Tree	Homestead

Sl. No	Botanical Name	Family	Frequency of occurrence	Growth form	Distribution
41	*Erythrina variegata L.*	Fabaceae	Common	Tree	Homestead
42	*Pithecellobium dulce (Roxb.) Benth.*	Fabaceae	Common	Tree	Roadside
43	*Pongamia pinnata (L.) Pierre*	Fabaceae	Common	Tree	Roadside
44	*Cinnamomum tamala (Buch.-Ham.)*	Lauraceae	Very common	Tree	Roadside
45	*Cinnamomum verum J.Presl*	Lauraceae	Common	Tree	Roadside
46	*Barringtonia acutangula (L.) Gaertn.*	Lecythidaceae	Common	Tree	Roadside
47	*Lagerstroemia speciosa (L.) Pers.*	Lythraceae	Very common	Tree	Roadside
48	*Lawsonia inermis L.*	Lythraceae	Common	Tree	Roadside
49	*Aphanamixis polystachya (Wall.)*	Meliaceae	Common	Tree	Roadside
50	*Azadirachta indica A.Juss.*	Meliaceae	Very common	Tree	Roadside
51	*Swietenia macrophylla King*	Meliaceae	Common	Tree	Roadside
52	*Swietenia mahagoni (L.) Jacq.*	Meliaceae	Very common	Tree	Roadside
53	*Acacia auriculiformis*	Mimosaceae	Very common	Tree	Roadside
54	*Acacia nilotica (L.) Willd.*	Mimosaceae	Common	Tree	Roadside
55	*Albizia lebbeck (L.) Benth.*	Mimosaceae	Very common	Tree	Roadside
56	*Albizia procera (Roxb.) Benth.*	Mimosaceae	Very common	Tree	Roadside
57	*Albizia richardiana King & Prain*	Mimosaceae	Common	Tree	Roadside
58	*Albizia saman (Jacq.) Merr.*	Mimosaceae	Common	Tree	Roadside
59	*Leucaena leucocephala (Lam.) de Wit*	Mimosaceae	Common	Tree	Roadside
60	*Artocarpus heterophyllus Lam.*	Moraceae	Very common	Tree	Roadside
61	*Artocarpus lacucha Buch.-Ham.*	Moraceae	Common	Tree	Roadside
62	*Ficus benghalensis L.*	Moraceae	Common	Tree	Roadside
63	*Ficus elastica Roxb.*	Moraceae	Rare	Tree	Roadside
64	*Ficus heterophylla L.f.*	Moraceae	Common	Tree	Roadside
65	*Ficus hispida L.f.*	Moraceae	Very common	Tree	Roadside
66	*Ficus microcarpa L.f.*	Moraceae	Common	Tree	Roadside
67	*Ficus racemosa L.*	Moraceae	Rare	Tree	Roadside
68	*Moringa oleifera Lam.*	Moringaceae	Very common	Tree	Roadside
69	*Callistemon citrinus (Curtis) Skeels*	Myrtaceae	Common	Tree	Roadside
70	*Eucalyptus camaldulensis Dehnh.*	Myrtaceae	Common	Tree	Roadside
71	*Psidium guajava L.*	Myrtaceae	Very common	Tree	Roadside
72	*Syzygium cumini (L.) Skeels*	Myrtaceae	Very common	Tree	Roadside
73	*Syzygium fruticosum DC.*	Myrtaceae	Common	Tree	Roadside
74	*Syzygium malaccense (L.)*	Myrtaceae	Common	Tree	Roadside
75	*Syzygium samarangense (Blume)*	Myrtaceae	Common	Tree	Roadside
76	*Bougainvillea glabra Choisy*	Nyctagynaceae	Common	Tree	Roadside
77	*Bougainvillea spectabilis Willd.*	Nyctagynaceae	Common	Tree	Roadside
78	*Averrhoa bilimbi L.*	Oxalidaceae	Common	Tree	Roadside
79	*Averrhoa carambola L.*	Oxalidaceae	Common	Tree	Roadside
80	*Punica granatum L.*	Punicaceae	Common	Tree	Roadside

3.1.2 Herb

A total 90 species of herbs were recorded from the three studied upazilas of Meherpur. In terms of distribution pattern, most of the herbs were found in roadside areas, followed by homestead areas. Eleven species of herbs were present in both roadside and homestead areas.

Table 4 Status and distribution of Herbs in the study area

Sl	Botanical Name	Family	Frequency of occurrence	Growth form	Distribution
1	*Andrographis paniculata (Burm.f.)*	Acanthaceae	Common	Herb	Roadside
2	*Hygrophila difformis (L.fil.) Blume*	Acanthaceae	Common	Herb	Roadside
3	*Hygrophila polysperma (Roxb.) T.Anderson*	Acanthaceae	Common	Herb	Roadside
4	*Hygrophila ringens (L.) R.Br.*	Acanthaceae	Common	Herb	Roadside
5	*Justicia gendarussa Burm.f.*	Acanthaceae	Common	Herb	Roadside
6	*Lepidagathis incurva Buch.-Ham.*	Acanthaceae	Common	Herb	Roadside
7	*Nelsonia canescens (Lam.) Spreng.*	Acanthaceae	Common	Herb	Roadside
8	*Ruellia simplex C.Wright*	Acanthaceae	Common	Herb	Roadside
9	*Ruellia tuberosa L.*	Acanthaceae	Common	Herb	Roadside
10	*Rungia pectinata (L.) Nees*	Acanthaceae	Very common	Herb	Roadside
11	*Dracaena spicata Roxb.*	Agavaceae	Rare	Herb	Roadside
12	*Aloe vera (L.) Burm. f.*	Aloeaceae	Common	Herb	All habitats
13	*Achyranthes aspera L.*	Amaranthaceae	Common	Herb	All habitats
14	*Aerva sanguinolenta (L.) Blume*	Amaranthaceae	Rare	Herb	All habitats
15	*Alternanthera philoxeroides (Mart.)*	Amaranthaceae	Common	Herb	All habitats
16	*Alternanthera sessilis (L.) DC.*	Amaranthaceae	Common	Herb	All habitats
17	*Amaranthus spinosus L.*	Amaranthaceae	Common	Herb	All habitats
18	*Amaranthus tricolor L.*	Amaranthaceae	Common	Herb	All habitats
19	*Amaranthus viridis L.*	Amaranthaceae	Common	Herb	All habitats
20	*Celosia argentea L.*	Amaranthaceae	Common	Herb	All habitats
21	*Cyathula prostrata (L.) Blume*	Amaranthaceae	Common	Herb	Roadside
22	*Centella asiatica (L.) Urb.*	Apiaceae	Very common	Herb	Roadside and Homestead
23	*Coriandrum sativum L.*	Apiaceae	Common	Herb	Homestead
24	*Eryngium foetidum L.*	Apiaceae	Common	Herb	Homestead
25	*Hydrocotyle sibthorpioides Lam.*	Apiaceae	Common	Herb	Homestead
26	*Alocasia macrorrhizos (L.) G.Don*	Araceae	Common	Herb	Roadside
27	*Amorphophallus bulbifer (Roxb.)*	Araceae	Rare	Herb	Homestead
28	*Caladium bicolor (Aiton) Vent.*	Araceae	Common	Herb	Roadside
29	*Colocasia esculenta (L.) Schott*	Araceae	Common	Herb	Roadside and Homestead
30	*Lasia spinosa (L.) Thwaites*	Araceae	Common	Herb	Roadside
31	*Syngonium podophyllum Schott*	Araceae	Common	Herb	Roadside
32	*Ageratum conyzoides L.*	Asteraceae	Very common	Herb	Roadside
33	*Centipeda minima (L.) A.Braun & Asch.*	Asteraceae	Common	Herb	Roadside
34	*Chrysanthemum morifolium (Ramat.)*	Asteraceae	Common	Herb	Roadside

Sl	Botanical Name	Family	Frequency of occurrence	Growth form	Distribution
35	*Cyanthillium cinereum (L.) H.Rob.*	Asteraceae	Common	Herb	Roadside
36	*Eclipta prostrata (L.) L.*	Asteraceae	Common	Herb	Roadside
37	*Grangea maderaspatana (L.) Poir.*	Asteraceae	Very common	Herb	Roadside
38	*Laphangium affine (D.Don) Tzvelev Syn. Gnaphalium affine D.Don*	Asteraceae	Common	Herb	Roadside
39	*Mikania scandens (L.) Willd.*	Asteraceae	Very common	Herb	Roadside
40	*Sparganophorus sparganophora (L.)*	Asteraceae	Common	Herb	Roadside
41	*Sphaeranthus indicus L.*	Asteraceae	Rare	Herb	Roadside
42	*Synedrella nodiflora (L.) Gaertn.*	Asteraceae	Common	Herb	Roadside
43	*Tagetes erecta L.*	Asteraceae	Common	Herb	Roadside
44	*Tridax procumbens (L.) L.*	Asteraceae	Common	Herb	Roadside
45	*Wedelia trilobata (L.) Hitchc.*	Asteraceae	Very common	Herb	Roadside
46	*Xanthium strumarium L.*	Asteraceae	Common	Herb	Roadside
47	*Zinnia elegans L.*	Asteraceae	Common	Herb	Roadside
48	*Impatens balsamina L.*	Balsaminaceae	Common	Herb	Roadside
49	*Basella alba L.*	Basellaceae	Common	Herb	Roadside
50	*Brassica napus L.*	Brassicaceae	Very common	Herb	Roadside
51	*Brassica nigra (L.) K.Koch*	Brassicaceae	Very common	Herb	Roadside
52	*Cardamine flexuosa With.*	Brassicaceae	Common	Herb	Roadside
53	*Raphanus raphanistrum subsp. sativus (L.) Domin Syn. Raphanus sativus L.*	Brassicaceae	Common	Herb	Roadside
54	*Rorippa dubia (Pers.) H.Hara*	Brassicaceae	Common	Herb	Roadside
55	*Rorippa indica (L.) Hiern*	Brassicaceae	Common	Herb	Roadside
56	*Chenopodium album L.*	Chenopodiaceae	Common	Herb	All habitats
57	*Commelina diffusa Burm. f.*	Commelinaceae	Common	Herb	Homestead
58	*Commelina benghalensis L.*	Commelinaceae	Common	Herb	Homestead
59	*Floscopa scandens Lour.*	Commelinaceae	Common	Herb	Homestead
60	*Tradescantia pallida (Rose) D.R.Hunt*	Commelinceae	Rare	Herb	Homestead
61	*Bryophyllum pinnatum (Lam.) Oken*	Crassulaceae	Common	Herb	Roadside
62	*Cyperus difformis L.*	Cyperaceae	Common	Herb	Roadside
63	*Cyperus imbricatus Retz.*	Cyperaceae	Common	Herb	Roadside
64	*Cyperus iria L.*	Cyperaceae	Common	Herb	Roadside
65	*Cyperus rotundus L.*	Cyperaceae	Common	Herb	Roadside
66	*Fimbristylis dichotoma (L.) Vahl*	Cyperaceae	Common	Herb	Roadside
67	*Kyllinga brevifolia Rottb.*	Cyperaceae	Common	Herb	Roadside
68	*Schoenoplectiella articulata (L.) Lye*	Cyperaceae	Common	Herb	Roadside
69	*Dillenia Indica L.*	Dilleniaceae	Common	Herb	Roadside
70	*Acalypha hispida Burm.f.*	Euphorbiaceae	Common	Herb	Roadside
71	*Acalypha indica L.*	Euphorbiaceae	Common	Herb	Roadside
72	*Desmodium gangeticum (L.) DC.*	Fabaceae	Common	Herb	Homestead
73	*Desmodium triflorum (L.) DC.*	Fabaceae	Common	Herb	Homestead
74	*Lathyrus sativus L.*	Fabaceae	Common	Herb	Roadside

Sl	Botanical Name	Family	Frequency of occurrence	Growth form	Distribution
75	*Pisum sativum L.*	Fabaceae	Very common	Herb	Roadside
76	*Anisomeles indica (L.) Kuntze*	Lamiaceae	Common	Herb	Roadside
77	*Hyptis brevipes Poit.*	Lamiaceae	Common	Herb	Roadside
78	*Hyptis capitata Jacq.*	Lamiaceae	Common	Herb	Roadside
79	*Hyptis suaveolens (L.) Poit.*	Lamiaceae	Common	Herb	Roadside
80	*Leonurus sibiricus L.*	Lamiaceae	Common	Herb	Roadside
81	*Leucas aspera (Willd.) Link*	Lamiaceae	Common	Herb	Roadside
82	*Leucas zeylanica (L.) W.T.Aiton*	Lamiaceae	Common	Herb	Roadside
83	*Ocimum tenuiflorum L.*	Lamiaceae	Very common	Herb	Roadside
84	*Plectranthus scutellarioides (L.) R.Br. Syn. Coleus scutellarioides (L.) Benth.*	Lamiaceae	Common	Herb	Roadside
85	*Allium cepa L.*	Liliaceae	Common	Herb	Roadside
86	*Mimosa pudica L.*	Mimosaceae	Very common	Herb	Roadside
87	*Mollugo oppositifolia L.*	Molluginaceae	Common	Herb	Roadside
88	*Musa paradisiaca L.*	Musaceae	Common	Herb	Roadside
89	*Musa acuminata Colla*	Musaceae	Common	Herb	Roadside
90	*Mirabilis jalapa L.*	Nyctagynaceae	Very common	Herb	Roadside

3.1.3 Shrub

59 species of shrubs were recorded from the study area (Table 5), where 47 species (80%) were common, 8 species (13%) were very common and 8 species (7%) were rare in occurrence (Fig. 6). Most of the shrubs were distributed near roadside areas.

Table 5. Status and distribution of Shrubs from the study sites

SL. NO	Botanical Name	Family	Frequency of occurrence	Growth form	Distribution
1	*Acanthus ilicifolius L.*	Acanthaceae	Common	Shrub	Roadside
2	*Justicia adhatoda L.*	Acanthaceae	Common	Shrub	Roadside
3	*Carissa carandas L.*	Apocynaceae	Common	Shrub	Roadside
4	*Catharanthus roseus (L.) G.Don*	Apocynaceae	Common	Shrub	Roadside
5	*Rauvolfia serpentina (L.) Benth.*	Apocynaceae	Common	Shrub	Roadside
6	*Tabernaemontana divaricata*	Apocynaceae	Common	Shrub	Roadside
7	*Calotropis gigantea (L.) Dryand.*	Asclepiadaceae	Common	Shrub	Homestead
8	*Tecoma stans (L.) Juss.*	Bignoniaceae	Common	Shrub	Roadside
9	*Senna occidentalis (L.) Link*	Caesalpiniaceae	Common	Shrub	Homestead
10	*Senna sophera (L.) Roxb.*	Caesalpiniaceae	Common	Shrub	Roadside
11	*Senna tora (L.) Roxb.*	Caesalpiniaceae	Common	Shrub	Roadside
12	*Canna indica L.*	Cannaceae	Common	Shrub	Roadside
13	*Baliospermum solanifolium (Burm.) Suresh*	Euphorbiaceae	Common	Shrub	Roadside
14	*Breynia vitis-idaea (Burm.f.)*	Euphorbiaceae	Common	Shrub	Roadside
15	*Codiaeum variegatum (L.)*	Euphorbiaceae	Common	Shrub	Roadside
16	*Croton bonplandianus Baill.*	Euphorbiaceae	Common	Shrub	Roadside
17	*Euphorbia cotinifolia L.*	Euphorbiaceae	Rare	Shrub	Roadside
18	*Euphorbia heterophylla L.*	Euphorbiaceae	Common	Shrub	Roadside
19	*Euphorbia hirta L.*	Euphorbiaceae	Common	Shrub	Roadside
20	*Euphorbia milii Des Moul.*	Euphorbiaceae	Common	Shrub	Roadside
21	*Euphorbia tithymaloides L.*	Euphorbiaceae	Common	Shrub	Roadside
22	*Excoecaria cochinchinensis Lour.*	Euphorbiaceae	Common	Shrub	Roadside
23	*Phyllanthus urinaria L.*	Euphorbiaceae	Common	Shrub	Homestead
24	*Cajanus cajan (L.) Huth*	Fabaceae	Common	Shrub	Homestead
25	*Crotalaria pallida Aiton*	Fabaceae	Common	Shrub	Homestead
26	*Sesbania bispinosa (Jacq.)*	Fabaceae	Common	Shrub	Roadside
27	*Leea indica (Burm. f.) Merr.*	Leeaceae	Very common	Shrub	Roadside
28	*Abelmoschus esculentus (L.) Moench*	Malvaceae	Common	Shrub	Roadside
29	*Abelmoschus moschatus Medik.*	Malvaceae	Common	Shrub	Roadside
30	*Abutilon indicum (L.) Sweet*	Malvaceae	Common	Shrub	Roadside
31	*Hibiscus rosa-sinensis L.*	Malvaceae	Very common	Shrub	Roadside
32	*Malvaviscus arboreus Dill.*	Malvaceae	Common	Shrub	Roadside and Homestead
33	*Sida rhombifolia L.*	Malvaceae	Common	Shrub	Roadside

3.1.4 Aquatic Plants

Twelve species of aquatic plants were found in the wetlands under three districts. *Ipomoea aquatica*, *Pontederia crassipes*, and *Typha elephantina* were very common aquatic plants. The following table lists all the aquatic plants from the study area (Table 6).

Table 6. List of aquatic plants found in Meherpur district

Sl. No.	Botanical Name	Family	Frequency of occurrence	Growth form	Distribution
1	*Sagittaria sagittifolia L.*	Alismataceae	Rare	Aquatic	Waterbodies
2	*Pistia stratiotes L.*	Araceae	Common	Aquatic	Roadside and Homestead
3	*Cryptocoryne ciliata (Roxb.) Schott*	Asteraceae	Common	Aquatic	Waterbodies
4	*Enhydra fluctuans Lour.*	Asteraceae	Common	Aquatic	Roadside and Homestead
5	*Ipomoea aquatica Forssk.*	Convolvulaceae	Very common	Aquatic	Waterbodies
6	*Hydrolea zeylanica (L.) Vahl*	Hydroleaceae	Common	Aquatic	Waterbodies
7	*Ludwigia adscendens (L.) H.Hara*	Onagraceae	Common	Aquatic	Waterbodies
8	*Pontederia crassipes Mart. Syn. Eichhornia crassipes (Mart.) Solms*	Pontederiaceae	Very common	Aquatic	Waterbodies
9	*Pontederia hastata L. Syn. Monochoria hastata (L.) Solms*	Pontederiaceae	Common	Aquatic	Waterbodies
10	*Pontederia vaginalis Burm.f. Syn Monochoria vaginalis (Burm. f.) C. Presl*	Pontederiaceae	Common	Aquatic	Waterbodies
11	*Salvinia natans (L.) All.*	Salviniaceae	Common	Aquatic	Waterbodies
12	*Typha elephantina Roxb.*	Typhaceae	Very common	Aquatic	Waterbodies

3.1.5 Other plants

In addition to major plant categories, 37 species of plants from climber (21 species), Fern (5 Species), Vine (6 species), Epiphyte (2 species) and one species each of climbing vine, orchid and ornamental vine were also recorded (Table 7).

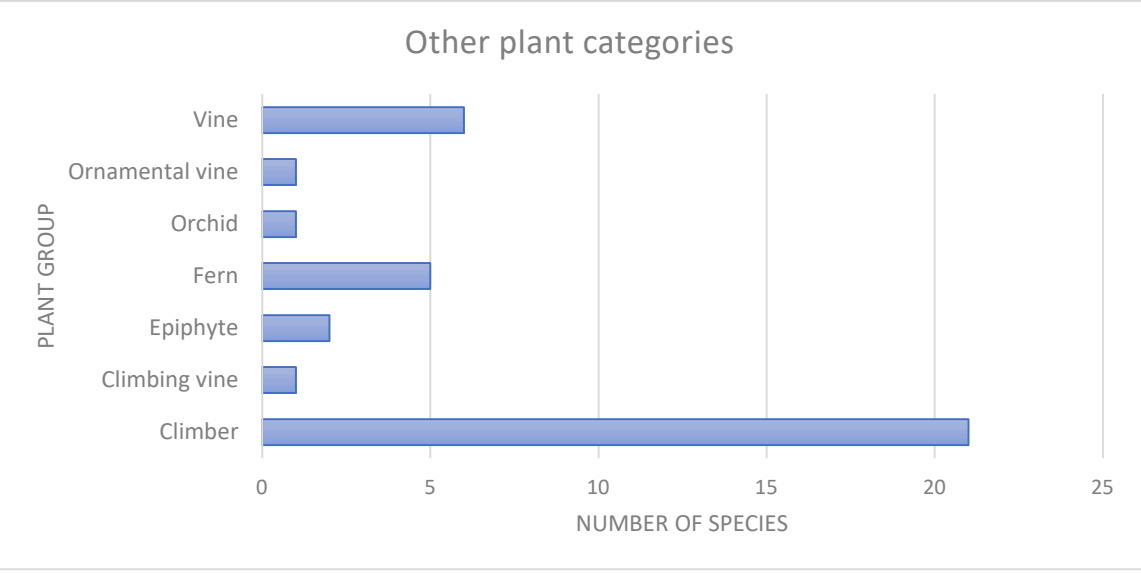


Figure. 4 Additional plant categories from study area.

Zeuxine strateumatica, a species of terrestrial orchid from Mujibnagar, Meherpur.

Table 7. Other plants recorded from Meherpur district

SL No.	*Botanical Name*	Family	Frequency of occurrence	Growth form	Distribution
1	*Allamanda cathartica L.*	Apocynaceae	Common	Vine	Homestead
2	*Hoya parasitica Wall.*	Asclepiadaceae	Rare	Climbing vine	Homestead
3	*Selenicereus undatus (Haw.) D.R.Hunt Syn. Hylocereus undatus (Haw.) Britton & Rose*	Cactaceae	Rare	Ornamental vine	Roadside
4	*Ipomoea batatas (L.) Lam.*	Convolvulaceae	Common	Vine	Roadside
5	*Ipomoea fistulosa Mart.*	Convolvulaceae	Common	Vine	Roadside
6	*Merremia hederacea (Burm. f.) Hallier f.*	Convolvulaceae	Common	Vine	Roadside
7	*Benincasa hispida (Thunb.) Cogn.*	Cucurbitaceae	Rare	Climber	Roadside
8	*Coccinia grandis (L.) Voigt*	Cucurbitaceae	Common	Climber	Roadside
9	*Cucumis sativus L.*	Cucurbitaceae	Common	Climber	Roadside
10	*Cucurbita maxima Duchesne*	Cucurbitaceae	Common	Climber	Roadside
11	*Lagenaria siceraria (Molina) Standl.*	Cucurbitaceae	Common	Climber	Roadside
12	*Luffa acutangula (L.) Roxb.*	Cucurbitaceae	Common	Climber	Roadside
13	*Luffa cylindrica (L.) M.Roem.*	Cucurbitaceae	Common	Climber	Roadside
14	*Momordica charantia L.*	Cucurbitaceae	Common	Climber	Roadside
15	*Momordica cochinchinensis (Lour.) Spreng.*	Cucurbitaceae	Common	Climber	Roadside
16	*Momordica dioica Roxb.*	Cucurbitaceae	Common	Climber	Roadside

SL No.	*Botanical Name*	Family	Frequency of occurrence	Growth form	Distribution
17	*Trichosanthes cucumerina L. Syn. Trichosanthes anguina L.*	Cucurbitaceae	Common	Climber	Roadside
18	*Cuscuta reflexa Roxb.*	Cuscutaceae	Common	Vine	Roadside
19	*Dioscorea bulbifera L.*	Dioscoreaceae	Common	Climber	Homestead
20	*Canavalia ensiformis (L.) DC.*	Fabaceae	Common	Climber	Homestead
21	*Canavalia gladiata (Jacq.) DC.*	Fabaceae	Rare	Climber	Homestead
22	*Clitoria ternatea L. f.*	Fabaceae	Common	Climber	Homestead
23	*Lablab purpureus (L.) Sweet*	Fabaceae	Common	Climber	Homestead
24	*Psophocarpus tetragonolobus (L.) DC.*	Fabaceae	Common	Climber	Roadside
25	*Vigna radiata (L.) R.Wilczek*	Fabaceae	Common	Climber	Roadside
26	*Vigna unguiculata (L.) Walp.*	Fabaceae	Common	Climber	Roadside
27	*Dendrophthoe falcata (L.f.) Ettingsh.*	Loranthaceae	Common	Epiphyte	Roadside
28	*Dendrophthoe pentandra (L.) Miq.*	Loranthaceae	Common	Epiphyte	Roadside
29	*Stephania japonica (Thunb.) Miers*	Menispermaceae	Common	Climber	Roadside
30	*Rhynchostylis retusa (L.) Blume*	Orchidaceae	Common	Orchid	Roadside
31	*Passiflora foetida L.*	Passifloraceae	Common	Climber	Roadside
32	*Drynaria quercifolia (L.) J. Sm.*	Polypodiaceae	Common	Fern	Roadside
33	*Microsorum punctatum (L.) Copel.*	Polypodiaceae	Very Common	Fern	Roadside
34	*Adiantum philippense L.*	Pteridaceae	Common	Fern	Roadside
35	*Pteris vittata L.*	Pteridaceae	Common	Fern	Roadside
36	*Cardiospermum halicacabum L.*	Sapindaceae	Common	Vine	Roadside
37	*Christella dentata (Forssk.) Brownsey & Jermy is*	Thelypteridaceae	Common	Fern	Homestead

Pontederia hastata L. =

Xanthium strumarium

Solanum nigrum L.

Croton bonplandianus Baill.

Calotropis procera (Ait.) R.Br. in Ait.f.

Cleome viscosa L.

3.2 FAUNA

3.2.1. Fish and Fisheries

A total of 74 fish and 2 prawn species under 14 orders and 26 families were recorded. Among these 76 species, 68 species were found in the fish markets and fish landing stations, and another 8 species of fish were recorded from the questionnaire survey with the fishermen and secondary sources (Tikadar et al. 2021) shown in Error! Reference source not found..

Table 8. List of fishes found in Meherpur district

Sl. No.	Family	English Name	Scientific Name	IUCN Threat Status	
				BD	Global
1	Clupeidae	Hilsa shad	*Tenualosa ilisha*	LC	LC
2		Indian river shad	*Gudusia chapra*	VU	LC
3		Ganges river sprat	*Corica soborna*	LC	LC
4	Belonidae	Freshwater gar fish	*Xenentodon cancila*	LC	NE
5	Engraulidae	Gangetic hairfin anchovy*	*Setipinna phasa*	LC	LC
6	Channidae	Spotted snakehead	*Channa punctata*	LC	LC
7		Asiatic snakehead	*C. orientalis*	LC	LC
8		Snakehead murrel	*C. striatus*	LC	LC
9		Giant snakehead	*C. marulius*	EN	LC
10	Cobitidae	Guntea loach	*Lepidocephalichthys guntea*	LC	LC
11		Necktie loach	*Botia dario*	EN	LC
12	Cyprinidae	Indian major carp	*Labeo catla*	LC	NE
13		Indian major carp	*Labeo rohita*	LC	LC
14		Indian major carp	*Cirrhinus cirrhosus*	NT	VU
15		Reba carp	*C. reba*	NT	LC
16		Carplet/Morari	*Cabdio morar*	LC	LC
17		Bata	*Labeo bata*	LC	LC
18		Black Rohu	*L. calbasu*	LC	LC
19		Fine scale razorbelly minnow*	*Chela cachius*	VU	LC
20		Large razorbelly minnow	*Salmostoma bacaila*	LC	LC
21		Silver Razorbelly Minnow	*Salmostoma acinaces*	LC	LC
22		Fine scale razorbelly minnow*	*S. phulo*	NT	LC
23		Mola Carplet	*Amblypharyngodon mola*	LC	LC
24		Flaying barb	*Esomus danrica*	LC	LC
25		Cotio	*Osteobrama cotio*	NT	LC
26		Ticto barb	*Pethia ticto*	VU	LC
27		Spot fin swamp barb	*P. sophore*	LC	LC
28		Olive barb	*Systomus sarana*	NT	LC
29		Red Barb	*Pethia conchonius*	LC	LC
30		Chola Barb	*Puntius chola*	LC	LC
31		One Spot Barb*	*Puntius terio*	LC	LC
32	Xenocyprididae	Silver Carp	Hypophthalmichthys molitrix	LC	LC

Sl. No.	Family	English Name	Scientific Name	IUCN Threat Status	
				BD	Global
33		Bighead Carp	Hypophthalmichthys molitrix	LC	LC
34	Mugillidae	Mullet	*Rhinomugil corsula*	LC	LC
35		Yellowtail Mullet	Sicamugil cascasia	VU	LC
36	Palaemonidae	Monsoon river prawn	*Macrobrachium malcolmsonii*	LC	NE
37		Monsoon river prawn	*M. lamarrei*	LC	NE
38	Notopteriidae	Clown knife fish*	*Chitala chitala*	EN	NT
39		Bronze featherback	*Notopterus notopterus*	VU	C
40	Ambassidae	Elongated glass perchlet	*Chanda nama*	LC	LC
41		Highfin glassy perchlet	*Parambasis lala*	LC	NE
42		Indian glassy fish	*P. ranga*	LC	LC
43		Climbing perch	*Anabas testudineus*	LC	DD
44	Badidae	Badis and Dwarf chameleon fish	*Badis badis*	NT	LC
45	Gobiidae	Tank goby	*Glossogobius giuris*	LC	LC
46	Osphronemidae	Honey gourami	*Trichogaster chuna*	LC	LC
47		Dwarf gourami	*Trichogaster lalius*	LC	LC
48		Banded Gourami	*Trichogaster fasciata*	LC	LC
49		Thick-lipped Gourami	*Trichogaster labiosus*	LC	LC
50	Nandidae	Mud perch	*Nandus nandus*	NT	LC
51	Sciaenidae	Pama croaker	*Otolithoides pama*	NE	NE
52	Bagridae	Day's mystus	*Mystus bleekeri*	LC	LC
53		Tengara mystus	*M. tengara*	LC	LC
54		Striped dwarf catfish	*M. vittatus*	LC	LC
55		Long whiskered catfish	*Sperata aor*	VU	LC
56		Rita*	*Rita rita*	EN	LC
57	Heteropneustidae	Stinging catfish	*Heteropneustes fossilis*	LC	LC
58		Walking catfish	*Clarias batrachus*	LC	LC
59	Pangasiidae	Yellow tail catfish	*Pangasius pangasius*	EN	LC
60	Schilbeidae	Batchwa vacha	*Eutropiichthys vacha*	LC	LC
61		Murius vacha	*E. murius*	LC	LC
62		Garua Bachcha*	*Clupisoma garua*	EN	NE
63		Gangetic ailia	*Ailia coila*	LC	NT
64		Indian potasi	*Pachyterus atherinoides*	LC	LC
65		Silond catfish	*Silonia silondia*	LC	LC
66	Siluridae	Freshwater shark	*Wallago attu*	VU	NT

Note: *EN*: endangered, *CR*: critically endangered, *VU*: vulnerable, *NE*: not evaluated, *NT*: near threatened, *LC*: least concern, *DD*: data deficient, IUCN status (IUCN 2015).

Mixed species of fishes

Mixed species of fishes

Mixed species of fishes

Piali (*Cabdio morar*)

Different species of fishes recorded from the markets of Meherpur district.

3.2.2. Amphibians

During the study period a total of 14 species of amphibians were recorded from three upazilas of Meherpur district. Among the recorded amphibians, two species was toad and rest of all were frogs. The family Dicroglossidae comprised of highest number of species (9 species), followed by

Table 9. List of amphibians recorded from Meherpur district

Sl.	Name	Scientific Name	Relative Status			IUCN Threat Status	
			Meherpur Sadar	Gangni	Mujibnagar	National	Global
1	Common Toad	*Duttaphrynus melanostictus*	VC	VC	VC	LC	LC
2	Marbled Toad	*Firouzophrynus stomaticus*	C	C	UC	LC	LC
3	Asmat's Cricket Frog	*Fejervarya asmati*	UC	UC	UC	LC	LC
4	Terai Cricket Frog	*Fejervarya teraiensis*	VC	VC	VC	LC	LC
5	Pierre's Cricket Frog	*Fejervarya pierrei*	C	C	C	LC	LC
6	Crab-eating Frog	*Fejervarya cancrivora*	UC	UC	UC	LC	LC
7	Syhadra Cricket Frog	*Fejervarya syhadrensis*	C	C	C	LC	LC
8	Skipper Frog	*Euphlyctis cyanophlyctis*	VC	VC	VC	LC	LC
9	Green Frog	*Euphlyctis* hexadactylus	C	UC	UC	LC	LC
10	Indian Bullfrog	*Hoplobatrachus tigerinus*	C	C	C	LC	LC
11	Six-lined Tree Frog	*Polypedates leucomystax*	UC	UC	UC	LC	LC
12	Two-striped Grass Frog	*Hylarana taipehensis*	UC	UC	UC	LC	LC
13	Ornate Micrhylid Frog	*Microhyla ornata*	VC	VC	VC	LC	LC
14	Mymensingh Microhylid Frog	*Microhyla mymensinghensis*	UC	UC	UC	LC	LC

Source: Field Survey

Note: *EN*: endangered, *CR*: critically endangered, *VU*: vulnerable, *NE*: not evaluated, *NT*: near threatened, *LC*: least concern, *DD*: data deficient, IUCN status (IUCN 2015).

Common Toad

Marbled Toad

Different species of amphibians recorded from the markets of Meherpur district.

3.2.3. Reptiles

A total of 20 species of reptiles under eight families were recorded (Table 10) from Meherpur district. Among the recorded reptiles, one species was agamid, three geckos, four skinks, two monitor lizards and ten species of snakes. Most of the snakes were found very rare in this region. Occurrence of only two species of turtles were recorded during the field visit.

Most of the recorded reptiles 36.36% were rare while 18.18% was very common, 22.73% each were common and uncommon. Occurrence of turtles were only confirmed from the interview of fishermen.

Table 10. List of reptiles recorded during the field survey in Meherpur district

Sl.	Name	Scientific Name	Relative Status			IUCN Threat Status	
			Meherpur Sadar	Gangni	Mujibnagar	National	Global
1	Common Garden Lizard	*Calotes versicolor*	VC	VC	VC	LC	LC
2	Common House Gecko	*Hemidactylus frenatus*	VC	VC	VC	LC	LC
3	Yellow-Green House Gecko	*Hemidactylus flaviviridis*	C	C	C	LC	LC
4	Brook's House Gecko	*Hemidactylus brookii*	C	UC	C	LC	LC
5	Bronze Grass Skink	*Eutropis macularia*	C	C	UC	LC	LC
6	Keeled Grass Skink	*Eutropis carinata*	C	UC	UC	LC	LC
7	Many-lined Grass Skink	*Eutropis multifasciata*	UC	UC	UC	LC	LC
8	Bowring's Supple Skink	*Lygosoma bowringii*	R	R	R	LC	LC
9	Bengal Monitor Lizard	*Varanus bengalensis*	C	C	C	LC	LC
10	Yellow Monitor	*Varanus flavescens*	R	R	R	NT	EN
11	Common Blind Snake	*Ramphotyphlops braminus*	C	C	C	LC	LC
12	Checkered Keelback	*Xenochrophis piscator*	VC	VC	VC	LC	LC
13	Striped Keelback	*Amphiesma stolatum*	UC	UC	UC	LC	LC
14	Common Smooth Water Snake	*Enhydris enhydris*	VC	VC	VC	LC	LC
15	Common wolf Snake	*Lycodon aulicus*	C	UC	UC	LC	LC
16	Indian Rat Snake	*Ptyas mucosa*	R	R	R	LC	LC
17	Monocled Cobra	*Naja kaouthia*	R	R	R	NT	LC
18	Binocled Cobra	*Naja naja*	R	R	R	NT	LC
19	Common Krait	*Bungarus caeruleus*	R	R	R	NT	LC
20	Banded Krait	*Bungarus fasciatus*	UC	UC	UC	LC	LC

Source: Field Survey

Note: *EN*: endangered, *CR*: critically endangered, *VU*: vulnerable, *NE*: not evaluated, *NT*: near threatened, *LC*: least concern, *DD*: data deficient, IUCN status (IUCN 2015).

Common Garden Lizard (Gangni)

Checkered Keelback (Meherpur Sadar)

3.2.4 Birds

A total of 168 species of birds were found in the study area as an outcome of the direct field survey and based on secondary literatures (Published scientific article, citizen science apps and newspaper article). The listed avifauna were comprised of total 58 families, of which Anatidae and Accipitridae had the highest number of species (n=14), followed by Ardeidae (n=10) and Scolopacidae (n=10).

Threatened Status of Birds

About 94% (n=199) birds were fallen under least concern species category, seven species were near threatened, two species were vulnerable (Black headed ibis and Imperial eagle), and Data Deficient (Indochinese Roller, Common quail). Figure 17 shows national threatened species of birds in terms of IUCN National assessment.

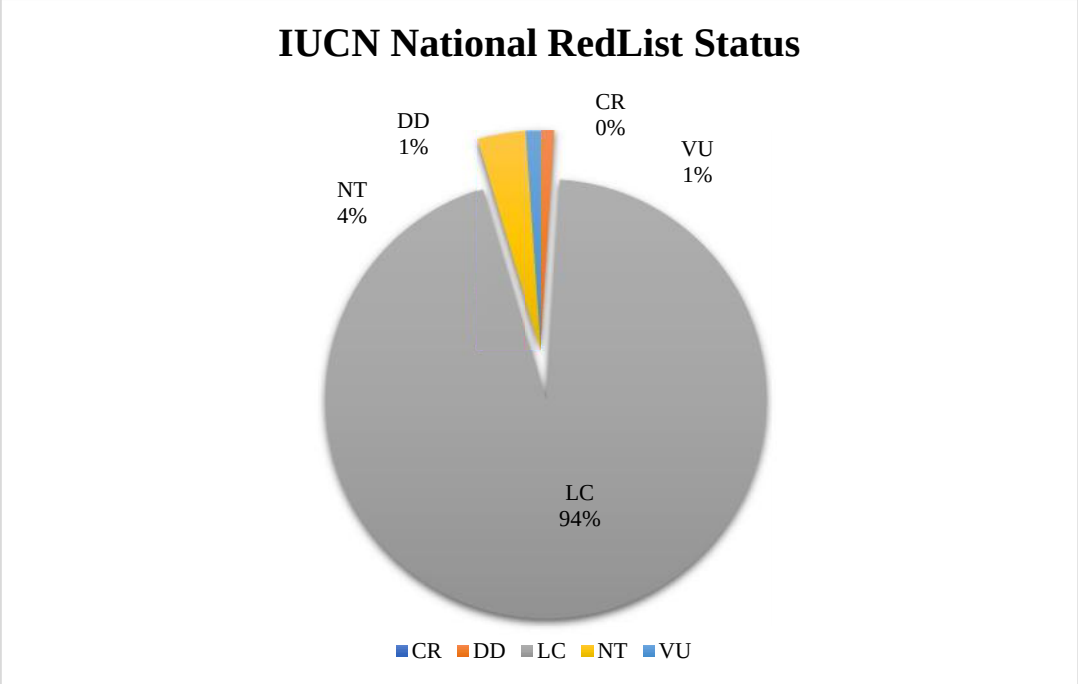


Figure 5. Threatened status of Birds from the study area based on IUCN National assessment

Table 11 List of birds recorded from different habitats of the study area.

SL	Family	Common Name	Scientific Name	Habitat	IUCN National Redlist Status	IUCN Global Status	Remarks
1	Anatidae	Fulvous Whistling-Duck	*Dendrocygna bicolor*	Wetland	LC	LC	Anatidae
2	Anatidae	Lesser Whistling-Duck	*Dendrocygna javanica*	Wetland	LC	LC	Anatidae
3	Anatidae	Ruddy Shelduck	*Tadorna ferruginea*	Wetland	LC	LC	Anatidae
4	Anatidae	Common Shelduck	*Tadorna tadorna*	Wetland	LC	LC	Anatidae
5	Anatidae	Cotton Pygmy-Goose	*Nettapus coromandelianus*	Wetland	LC	LC	Anatidae
6	Anatidae	Garganey	*Spatula querquedula*	Wetland	LC	LC	Anatidae
7	Anatidae	Gadwall	*Mareca strepera*	Wetland	LC	LC	Anatidae
8	Anatidae	Indian Spot-billed Duck	*Anas poecilorhyncha*	Wetland	LC	LC	Anatidae
9	Anatidae	Mallard	*Anas platyrhynchos*	Wetland	LC	LC	Anatidae
10	Anatidae	Northern Pintail	*Anas acuta*	Wetland	LC	LC	Anatidae
11	Anatidae	Green-winged Teal	*Anas crecca*	Wetland	LC	LC	Anatidae
12	Anatidae	Red-crested Pochard	*Netta rufina*	Wetland	LC	LC	Anatidae
13	Anatidae	Common Pochard	*Aythya ferina*	Wetland	LC	VU	Anatidae
14	Columbidae	Rock Pigeon	*Columba livia*	Agriculture land	LC	LC	Columbidae
15	Columbidae	Eurasian Collared-Dove	*Streptopelia decaocto*	Agriculture land	LC	LC	Columbidae
16	Columbidae	Red Collared-Dove	*Streptopelia tranquebarica*	Agriculture land	LC	LC	Columbidae
17	Columbidae	Spotted Dove	*Spilopelia chinensis*	Homestead vegetation	LC	LC	Columbidae
18	Columbidae	Yellow-footed Green-Pigeon	*Treron phoenicopterus*	Homestead vegetation	LC	LC	Columbidae
19	Cuculidae	Greater Coucal	*Centropus sinensis*	Homestead vegetation	LC	LC	Cuculidae
20	Cuculidae	Chestnut-winged Cuckoo	*Clamator coromandus*	Homestead vegetation	LC	LC	Cuculidae
21	Cuculidae	Pied Cuckoo	*Clamator jacobinus*	Homestead vegetation	LC	LC	Cuculidae
22	Cuculidae	Asian Koel	*Eudynamys scolopaceus*	Homestead vegetation	LC	LC	Cuculidae
23	Cuculidae	Plaintive Cuckoo	*Cacomantis merulinus*	Homestead vegetation	LC	LC	Cuculidae
24	Cuculidae	Large Hawk-Cuckoo	*Hierococcyx sparverioides*	Homestead vegetation	LC	LC	Cuculidae
25	Cuculidae	Common Hawk-Cuckoo	*Hierococcyx varius*	Homestead vegetation	LC	LC	Cuculidae

SL	Family	Common Name	Scientific Name	Habitat	IUCN National Redlist Status	IUCN Global Status	Remarks
26	Cuculidae	Indian Cuckoo	*Cuculus micropterus*	Homestead vegetation	LC	LC	Cuculidae
27	Caprimulgidae	Large-tailed Nightjar	*Caprimulgus macrurus*	Homestead vegetation	LC	LC	Caprimulgidae
28	Podargidae	House Swift	*Apus nipalensis*	Homestead vegetation	LC	LC	Podargidae
29	Podargidae	Asian Palm Swift	*Cypsiurus balasiensis*	Homestead vegetation	LC	LC	Podargidae
30	Rallidae	Eurasian Moorhen	*Gallinula chloropus*	Wetland	LC	LC	Rallidae
31	Rallidae	Eurasian Coot	*Fulica atra*	Wetland	LC	LC	Rallidae
32	Rallidae	Watercock	*Gallicrex cinerea*	Wetland	LC	LC	Rallidae
33	Rallidae	White-breasted Waterhen	*Amaurornis phoenicurus*	Wetland	LC	LC	Rallidae
34	Recurvirostridae	Black-winged Stilt	*Himantopus himantopus*	Wetland	LC	LC	Recurvirostridae
35	Recurvirostridae	Pied Avocet	*Recurvirostra avosetta*	Wetland	LC	LC	Recurvirostridae
36	Charadriidae	Pacific Golden-Plover	*Pluvialis fulva*	Wetland	LC	LC	Charadriidae
37	Charadriidae	Little Ringed Plover	*Thinornis dubius*	Wetland	LC	LC	Charadriidae
38	Charadriidae	Northern Lapwing	*Vanellus vanellus*	Wetland	NT	NT	Charadriidae
39	Charadriidae	River Lapwing	*Vanellus duvaucelii*	Wetland	NT	NT	Charadriidae
40	Charadriidae	Yellow-wattled Lapwing	*Vanellus malabaricus*	Wetland	NT	LC	Charadriidae
41	Charadriidae	Gray-headed Lapwing	*Vanellus cinereus*	Wetland	LC	LC	Charadriidae
42	Charadriidae	Red-wattled Lapwing	*Vanellus indicus*	Wetland	LC	LC	Charadriidae
43	Charadriidae	Greater Sand-Plover	*Anarhynchus leschenaultii*	Wetland	LC	LC	Charadriidae
44	Charadriidae	Kentish Plover	*Anarhynchus alexandrinus*	Wetland	LC	LC	Charadriidae
45	Jacanidae	Pheasant-tailed Jacana	*Hydrophasianus chirurgus*	Wetland	LC	LC	Jacanidae
46	Jacanidae	Bronze-winged Jacana	*Metopidius indicus*	Wetland	LC	LC	Jacanidae
47	Scolopacidae	Common Snipe	*Gallinago gallinago*	Wetland	LC	LC	Scolopacidae
48	Scolopacidae	Common Sandpiper	*Actitis hypoleucos*	Wetland	LC	LC	Scolopacidae
49	Scolopacidae	Green Sandpiper	*Tringa ochropus*	Wetland	LC	LC	Scolopacidae
50	Scolopacidae	Marsh Sandpiper	*Tringa stagnatilis*	Wetland	LC	LC	Scolopacidae
51	Scolopacidae	Wood Sandpiper	*Tringa glareola*	Wetland	LC	LC	Scolopacidae
52	Scolopacidae	Common Redshank	*Tringa totanus*	Wetland	LC	LC	Scolopacidae

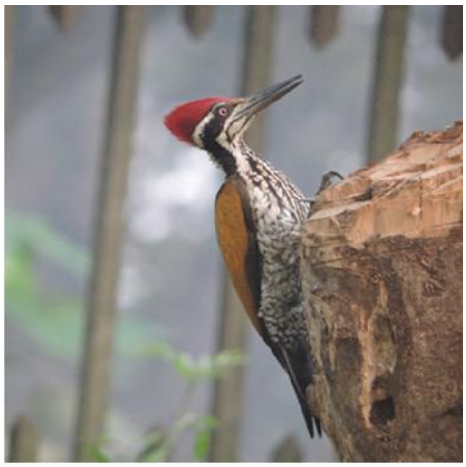
SL	Family	Common Name	Scientific Name	Habitat	IUCN National Redlist Status	IUCN Global Status	Remarks
53	Scolopacidae	Common Greenshank	*Tringa nebularia*	Wetland	LC	LC	Scolopacidae
54	Scolopacidae	Temminck's Stint	*Calidris temminckii*	Wetland	LC	LC	Scolopacidae
55	Scolopacidae	Red-necked Stint	*Calidris ruficollis*	Wetland	NT	NT	Scolopacidae
56	Scolopacidae	Little Stint	*Calidris minuta*	Wetland	LC	LC	Scolopacidae
57	Glareolidae	Oriental Pratincole	*Glareola maldivarum*	Wetland	LC	LC	Glareolidae
58	Laridae	Black-headed Gull	*Chroicocephalus ridibundus*	Wetland	LC	LC	Laridae
59	Laridae	Brown-headed Gull	*Chroicocephalus brunnicephalus*	Wetland	LC	LC	Laridae
60	Laridae	Pallas's Gull	*Ichthyaetus ichthyaetus*	Wetland	LC	LC	Laridae
61	Laridae	Little Tern	*Sternula albifrons*	Wetland	LC	LC	Laridae
62	Laridae	River Tern	*Sterna aurantia*	Wetland	NT	VU	Laridae
63	Laridae	Common Tern	*Sterna hirundo*	Wetland	LC	LC	Laridae
64	Podicipedidae	Little Grebe	*Tachybaptus ruficollis*	Wetland	LC	LC	Podicipedidae
65	Podicipedidae	Great Crested Grebe	*Podiceps cristatus*	Wetland	LC	LC	Podicipedidae
66	Ciconiidae	Asian Openbill	*Anastomus oscitans*	Wetland	LC	LC	Ciconiidae
67	Anhingidae	Oriental Darter	*Anhinga melanogaster*	Wetland	NT	LC	Anhingidae
68	Phalacrocoracidae	Little Cormorant	*Microcarbo niger*	Wetland	LC	LC	Phalacrocoracidae
69	Phalacrocoracidae	Great Cormorant	*Phalacrocorax carbo*	Wetland	LC	LC	Phalacrocoracidae
70	Phalacrocoracidae	Indian Cormorant	*Phalacrocorax fuscicollis*	Wetland	LC	LC	Phalacrocoracidae
71	Threskiornithidae	Black-headed Ibis	*Threskiornis melanocephalus*	Wetland	VU	LC	Threskiornithidae
72	Ardeidae	Cinnamon Bittern	*Botaurus cinnamomeus*	Wetland	LC	LC	Ardeidae
73	Ardeidae	Yellow Bittern	*Botaurus sinensis*	Wetland	LC	LC	Ardeidae
74	Ardeidae	Black-crowned Night Heron	*Nycticorax nycticorax*	Wetland	LC	LC	Ardeidae
75	Ardeidae	Little Egret	*Egretta garzetta*	Wetland	LC	LC	Ardeidae
76	Ardeidae	Striated Heron	*Butorides striata*	Wetland	LC	LC	Ardeidae
77	Ardeidae	Indian Pond-Heron	*Ardeola grayii*	Wetland	LC	LC	Ardeidae
78	Ardeidae	Eastern Cattle-Egret	*Ardea coromanda*	Wetland	LC	LC	Ardeidae
79	Ardeidae	Great Egret	*Ardea alba*	Wetland	LC	LC	Ardeidae
80	Ardeidae	Medium Egret	*Ardea intermedia*	Wetland	LC	LC	Ardeidae
81	Ardeidae	Gray Heron	*Ardea cinerea*	Wetland	LC	LC	Ardeidae

SL	Family	Common Name	Scientific Name	Habitat	IUCN National Redlist Status	IUCN Global Status	Remarks
82	Accipitridae	Black-winged Kite	*Elanus caeruleus*	Agriculture land	LC	LC	Accipitridae
83	Accipitridae	Oriental Honey-buzzard	*Pernis ptilorhynchus*	Agriculture land	LC	LC	Accipitridae
84	Accipitridae	Changeable Hawk-Eagle	*Nisaetus cirrhatus*	Agriculture land	LC	LC	Accipitridae
85	Accipitridae	Shikra	*Tachyspiza badia*	Agriculture land	LC	LC	Accipitridae
86	Accipitridae	Western Marsh Harrier	*Circus aeruginosus*	Agriculture land	LC	LC	Accipitridae
87	Accipitridae	Eastern Marsh Harrier	*Circus spilonotus*	Agriculture land	LC	LC	Accipitridae
88	Accipitridae	Pied Harrier	*Circus melanoleucos*	Agriculture land	LC	LC	Accipitridae
89	Accipitridae	Black Kite	*Milvus migrans*	Agriculture land	LC	LC	Accipitridae
90	Accipitridae	Brahminy Kite	*Haliastur indus*	Agriculture land	LC	LC	Accipitridae
91	Accipitridae	Gray-headed Fish-Eagle	*Icthyophaga ichthyaetus*	Wetland	NT	NT	Accipitridae
92	Accipitridae	Imperial Eagle	*Aquila heliaca*	Grasslands and Open habitats	VU	VU	Accipitridae
93	Accipitridae	White-eyed Buzzard	*Butastur teesa*	Agriculture land	LC	LC	Accipitridae
94	Accipitridae	Common Buzzard	*Buteo buteo*	Agriculture land	LC	LC	Accipitridae
95	Accipitridae	Long-legged Buzzard	*Buteo rufinus*	Agriculture land	LC	LC	Accipitridae
96	Strigidae	Collared Scops-Owl	*Otus lettia*	Homestead vegetation	LC	LC	Strigidae
97	Strigidae	Brown Fish-Owl	*Ketupa zeylonensis*	Homestead vegetation	LC	EN	Strigidae
98	Strigidae	Spotted Owlet	*Athene brama*	Homestead vegetation	LC	LC	Strigidae
99	Strigidae	Brown Boobook	*Ninox scutulata*	Homestead vegetation	LC	LC	Strigidae
100	Upupidae	Eurasian Hoopoe	*Upupa epops*	Grasslands and Open habitats	LC	LC	Upupidae
101	Meropidae	Asian Green Bee-eater	*Merops orientalis*	Grasslands and Open habitats	LC	LC	Meropidae
102	Meropidae	Chestnut-headed Bee-eater	*Merops leschenaulti*	Grasslands and Open habitats	LC	LC	Meropidae
103	Alcedinidae	Common Kingfisher	*Alcedo atthis*	Wetland	LC	LC	Alcedinidae
104	Alcedinidae	Stork-billed Kingfisher	*Pelargopsis capensis*	Wetland	LC	LC	Alcedinidae
105	Alcedinidae	White-throated Kingfisher	*Halcyon smyrnensis*	Wetland	LC	LC	Alcedinidae
106	Alcedinidae	Pied Kingfisher	*Ceryle rudis*	Wetland	LC	LC	Alcedinidae
107	Coraciidae	Indian Roller	*Coracias benghalensis*	Homestead vegetation	LC	LC	Coraciidae

SL	Family	Common Name	Scientific Name	Habitat	IUCN National Redlist Status	IUCN Global Status	Remarks
108	Coraciidae	Indochinese Roller	*Coracias affinis*	Homestead vegetation	DD	LC	Coraciidae
109	Megalaimidae	Coppersmith Barbet	*Psilopogon haemacephalus*	Homestead vegetation	LC	LC	Megalaimidae
110	Megalaimidae	Lineated Barbet	*Psilopogon lineatus*	Homestead vegetation	LC	LC	Megalaimidae
111	Megalaimidae	Blue-throated Barbet	*Psilopogon asiaticus*	Homestead vegetation	LC	LC	Megalaimidae
112	Picidae	Eurasian Wryneck	*Jynx torquilla*	Grasslands and Open habitats	LC	LC	Picidae
113	Picidae	Fulvous-breasted Woodpecker	*Dendrocopos macei*	Homestead vegetation	LC	LC	Picidae
114	Picidae	Greater Flameback	*Chrysocolaptes guttacristatus*	Homestead vegetation	LC	LC	Picidae
115	Picidae	Rufous Woodpecker	*Micropternus brachyurus*	Homestead vegetation	LC	LC	Picidae
116	Picidae	Black-rumped Flameback	*Dinopium benghalense*	Homestead vegetation	LC	LC	Picidae
117	Picidae	Streak-throated Woodpecker	*Picus xanthopygaeus*	Homestead vegetation	LC	LC	Picidae
118	Falconidae	Eurasian Kestrel	*Falco tinnunculus*	Agriculture land	LC	LC	Falconidae
119	Falconidae	Red-necked Falcon	*Falco chicquera*	Agriculture land	LC	LC	Falconidae
120	Psittaculidae	Rose-ringed Parakeet	*Psittacula krameri*	Homestead vegetation	LC	LC	Psittaculidae
121	Campephagidae	Small Minivet	*Pericrocotus cinnamomeus*	Homestead vegetation	LC	LC	Campephagidae
122	Campephagidae	Black-headed Cuckooshrike	*Lalage melanoptera*	Homestead vegetation	LC	LC	Campephagidae
123	Oriolidae	Black-naped Oriole	*Oriolus chinensis*	Homestead vegetation	LC	LC	Oriolidae
124	Oriolidae	Black-hooded Oriole	*Oriolus xanthornus*	Homestead vegetation	LC	LC	Oriolidae
125	Artamidae	Ashy Woodswallow	*Artamus fuscus*	Homestead vegetation	LC	LC	Artamidae
126	Vangidae	Large Woodshrike	*Tephrodornis virgatus*	Homestead vegetation	LC	LC	Vangidae
127	Vangidae	Common Woodshrike	*Tephrodornis pondicerianus*	Homestead vegetation	LC	LC	Vangidae
128	Aegithinidae	Common Iora	*Aegithina tiphia*	Homestead vegetation	LC	LC	Aegithinidae
129	Rhipiduridae	White-throated Fantail	*Rhipidura albicollis*	Agriculture land	LC	LC	Rhipiduridae
130	Dicruridae	Black Drongo	*Dicrurus macrocercus*	Homestead vegetation	LC	LC	Dicruridae
131	Dicruridae	Ashy Drongo	*Dicrurus leucophaeus*	Homestead vegetation	LC	LC	Dicruridae
132	Dicruridae	Bronzed Drongo	*Dicrurus aeneus*	Homestead vegetation	LC	LC	Dicruridae

SL	Family	Common Name	Scientific Name	Habitat	IUCN National Redlist Status	IUCN Global Status	Remarks
133	Monarchidae	Black-naped Monarch	*Hypothymis azurea*	Agriculture land	LC	LC	Monarchidae
134	Monarchidae	Indian Paradise-Flycatcher	*Terpsiphone paradisi*	Agriculture land	LC	LC	Monarchidae
135	Laniidae	Brown Shrike	*Lanius cristatus*	Agriculture land	LC	LC	Laniidae
136	Laniidae	Long-tailed Shrike	*Lanius schach*	Agriculture land	LC	LC	Laniidae
137	Laniidae	Gray-backed Shrike	*Lanius tephronotus*	Agriculture land	LC	LC	Laniidae
138	Corvidae	Rufous Treepie	*Dendrocitta vagabunda*	Homestead vegetation	LC	LC	Corvidae
139	Corvidae	House Crow	*Corvus splendens*	Agriculture land	LC	LC	Corvidae
140	Corvidae	Large-billed Crow	*Corvus macrorhynchos*	Agriculture land	LC	LC	Corvidae
141	Alaudidae	Ashy-crowned Sparrow-Lark	*Eremopterix griseus*	Grasslands and Open habitats	LC	LC	Alaudidae
142	Alaudidae	Bengal Bushlark	*Plocealauda assamica*	Grasslands and Open habitats	LC	LC	Alaudidae
143	Alaudidae	Oriental Skylark	*Alauda gulgula*	Grasslands and Open habitats	LC	LC	Alaudidae
144	Alaudidae	Sand Lark	*Alaudala raytal*	Grasslands and Open habitats	LC	LC	Alaudidae
145	Cisticolidae	Common Tailorbird	*Orthotomus sutorius*	Agriculture land	LC	LC	Cisticolidae
146	Cisticolidae	Rufescent Prinia	*Prinia rufescens*	Grasslands and Open habitats	LC	LC	Cisticolidae
147	Cisticolidae	Gray-breasted Prinia	*Prinia hodgsonii*	Grasslands and Open habitats	LC	LC	Cisticolidae
148	Cisticolidae	Plain Prinia	*Prinia inornata*	Grasslands and Open habitats	LC	LC	Cisticolidae
149	Cisticolidae	Zitting Cisticola	*Cisticola juncidis*	Grasslands and Open habitats	LC	LC	Cisticolidae
150	Acrocephalidae	Thick-billed Warbler	*Arundinax aedon*	Grasslands and Open habitats	LC	LC	Acrocephalidae
151	Acrocephalidae	Paddyfield Warbler	*Acrocephalus agricola*	Grasslands and Open habitats	LC	LC	Acrocephalidae
152	Acrocephalidae	Blyth's Reed Warbler	*Acrocephalus dumetorum*	Grasslands and Open habitats	LC	LC	Acrocephalidae
153	Acrocephalidae	Clamorous Reed Warbler	*Acrocephalus stentoreus*	Grasslands and Open habitats	LC	LC	Acrocephalidae
154	Locustellidae	Striated Grassbird	*Megalurus palustris*	Grasslands and Open habitats	LC	LC	Locustellidae
155	Hirundinidae	Barn Swallow	*Hirundo rustica*	Agriculture land	LC	LC	Hirundinidae
156	Pycnonotidae	Red-vented Bulbul	*Pycnonotus cafer*	Homestead vegetation	LC	LC	Pycnonotidae
157	Pycnonotidae	Red-whiskered Bulbul	*Pycnonotus jocosus*	Homestead vegetation	LC	LC	Pycnonotidae
158	Phylloscopidae	Dusky Warbler	*Phylloscopus fuscatus*	Agriculture land	LC	LC	Phylloscopidae

SL	Family	Common Name	Scientific Name	Habitat	IUCN National Redlist Status	IUCN Global Status	Remarks
159	Phylloscopidae	Greenish Warbler	*Phylloscopus trochiloides*	Agriculture land	LC	LC	Phylloscopidae
160	Phylloscopidae	Blyth's Leaf Warbler	*Phylloscopus reguloides*	Agriculture land	LC	LC	Phylloscopidae
161	Zosteropidae	Indian White-eye	*Zosterops palpebrosus*	Homestead vegetation	LC	LC	Zosteropidae
162	Leiothrichidae	Jungle Babbler	*Argya striata*	Agriculture land	LC	LC	Leiothrichidae
163	Leiothrichidae	Striated Babbler	*Argya earlei*	Agriculture land	LC	LC	Leiothrichidae
164	Sturnidae	Indian Pied Starling	*Gracupica contra*	Agriculture land	LC	LC	Sturnidae
165	Sturnidae	Chestnut-tailed Starling	*Sturnia malabarica*	Agriculture land	LC	LC	Sturnidae
166	Sturnidae	Common Myna	*Acridotheres tristis*	Agriculture land	LC	LC	Sturnidae
167	Sturnidae	Bank Myna	*Acridotheres ginginianus*	Agriculture land	LC	LC	Sturnidae
168	Sturnidae	Jungle Myna	*Acridotheres fuscus*	Agriculture land	LC	LC	Sturnidae



Grater flame back

Black winged kite

lack crowned night heron

Gray-headed Lapwing in the paddy field

3.2.5 Mammals

A total of 24 species of mammals under 11 families were recorded from Meherpur district (Table 12).

A group of Northern Grey Langur (*Semnopithecus entellus*) with 32 individuals was recorded from Mujibnagar upazila. The langur group is habituated with the local people and tourists. Tourists are often found to provide food to the langurs.

Table 12. List of mammals recorded during the field survey in Meherpur district

Sl.	Name	Scientific Name	Relative Status			IUCN Threat Status	
			Meherpur Sadar	Gangni	Mujibnagar	National	Global
1	Hoary-bellied Squirrel	*Callosciurus pygerythrus*	VC	VC	VC	LC	LC
2	Five-striped Palm Squirrel	Funambulus pennantii	C	C	C	LC	LC
3	Lesser Bandicoot Rat	*Bandicota bengalensis*	VC	VC	VC	LC	LC
4	Greater Bandicote Rat	*Bandicota indica*	VC	VC	VC	LC	LC
5	Eastern House Mouse	*Mus musculus*	VC	VC	VC	LC	LC
6	Fileld Mouse	Mus booduga	UC	UC	UC	LC	LC
7	House Rat	*Rattus rattus*	VC	VC	VC	LC	LC
8	Long-tailed Climbing Mouse	*Vandeleuria oleracea*	C	C	C	LC	LC
9	Asian House Shrew	*Suncus murinus*	VC	VC	VC	LC	LC
10	Indian Flying Fox	*Pteropus giganteus*	VC	VC	VC	LC	LC
11	Greater Short-nosed Fruit Bat	*Cynopterus sphinx*	C	C	UC	LC	LC
12	Lesser Asiatic Yellow Bat	*Scotophilus kuhlii*	R	R	R	LC	LC
13	Indian Pipistrelle	*Pipistrellus coromandra*	UC	UC	UC	LC	LC
14	Least Pipistrelle	*Pipistrellus tenuis*	R	R	R	LC	LC

15	Intermediate Roundleaf Bat	*Hipposideros larvatus*	R	R	R	LC	LC
16	Greater False Vampire Bat	*Lyroderma lyra*	UC	UC	UC	LC	LC
17	Small Indian Mongoose	*Herpestes auropunctatus*	C	C	C	LC	LC
18	Grey Mongoose	*Herpestes edwardsi*	C	C	C	LC	LC
19	Golden Jackal	*Canis aureus*	VC	VC	VC	LC	LC
20	Bengal Fox	*Vulpes bengalensis*	R	R	R	VU	LC
21	Jungle Cat	*Felis chaus*	R	R	R	NT	LC
22	Large Indian Civet	*Viverra zibetha*	R	R	R	NT	LC
23	Rufous-tailed hare	*Lepus nigricollis*	R	R	R	EN	LC
24	Northern Grey Langur	*Semnopithecus entellus*	C	C	C	EN	LC

Source: Field Survey

Note: *EN*: endangered, *CR*: critically endangered, *VU*: vulnerable, *NE*: not evaluated, *NT*: near threatened, *LC*: least concern, *DD*: data deficient, IUCN status (IUCN 2015).

Northern Grey Langur (Mujibnagar)

Five-striped Palm Squirrel (Gangni)

4. Important Areas for Flora-Fauna

5.1 Wetlands

There are some wetlands of biodiversity significance have been recorded from Meherpur district. A total of 31 beels those hold water throughout the year. These Those wetlands should be conserved (Table 14).

Table 13 List of wetlands of biodiversity significance

Sl	Beel name	Area name		Location	
1	Garagari beel	Buripota	Meherpur sadar	23°46'49.93"N	88°34'0.24"E
2	Horirumpur beel	Buripota	Meherpur sadar	23°46'53.27"N	88°35'6.49"E
3	Jolee beel	Buripota	Meherpur sadar	23°45'29.01"N	88°35'42.56"E
4	Boro jolee beel	Buripota	Meherpur sadar	23°45'7.37"N	88°36'1.79"E
5	Chand beel	Amjhupi	Meherpur sadar	23°44'40.80"N	88°39'56.47"E
6	Katapukur beel	Baradi	Meherpur sadar	23°44'3.29"N	88°45'22.49"E
7	Harder beel	Baradi	Meherpur sadar	23°44'17.96"N	88°46'15.85"E
8	Sholmari beel	Baradi	Meherpur sadar	23°42'22.48"N	88°46'23.82"E
9	Bejon beel/ Terghoria beel	Kutubpur	Meherpur sadar	23°49'59.76"N	88°36'35.16"E
10	Nunar beel	Gangni	Meherpur sadar	23°51'26.54"N	88°48'44.71"E
11	Dubokhola beel	Kutubpur	Meherpur sadar	23°48'52.94"N	88°36'37.88"E
12	Bitkamari beel	Kutubpur	Meherpur sadar	23°48'42.86"N	88°36'27.58"E
13	Kutubpur beel	Kutubpur	Meherpur sadar	23°51'33.46"N	88°38'23.52"E
14	Duntola beel	Kutubpur	Meherpur sadar	23°50'18.12"N	88°35'40.25"E
15	Kakrajoler beel	Kutubpur	Meherpur sadar	23°50'51.01"N	88°37'18.00"E
16	Sholmari beel	Kutubpur	Meherpur sadar	23°51'50.14"N	88°35'20.63"E
17	Isamoti beel	Kathuli	Gangni	23°53'58.97"N	88°43'21.06"E
18	Dholar beel	Kathuli	Gangni	23°53'27.35"N	88°42'24.69"E
19	Shaldah beel	Roypur	Gangni	23°47'51.87"N	88°48'48.59"E
20	Dhomash beel	Kajipur	Gangni	23°56'26.44"N	88°45'43.13"E
21	Moragang river	Motmura	Gangni	23°53'14.49"N	88°49'30.16"E
22	Nougara beel	Dariapur	Mujibnagar	23°43'4.14"N	88°34'22.83"E
23	Chucho khola beel	Dariapur	Mujibnagar	23°42'8.96"N	88°34'4.45"E
24	Poddo beel	Bagoan	Mujibnagar	23°37'29.71"N	88°37'36.78"E
25	Taranagar chulkani beel	Bagoan	Mujibnagar	23°37'40.81"N	88°37'51.06"E
26	Tuplar beel	Bagoan	Mujibnagar	23°38'8.32"N	88°38'13.44"E
27	Nagar beel			23°40'57.58"N	88°34'49.31"E
28	Horirampur beel	Bagoan	Mujibnagar	23°36'49.52"N	88°39'3.24"E
29	Shib nogor bot tola beel	Bagoan	Mujibnagar	23°37'22.60"N	88°39'27.32"E
30	Mirgangi beel		Chuadanga	23°39'52.44"N	88°44'8.21"E
31	Kajla beel/ dolka beel		Chuadanga	23°40'36.95"N	88°45'4.16"E

Moragang beel at Gangni Upazila, Meherpur

Moragang beel at Gangni Upazila, Meherpur

Shaldah beel at Gangni Upazila, Meherpur

Dhomash Beel at Kajibur, Gangni, Meherpur

5. Conclusion

Baseline data were collection covering at least two vital seasons; monsoon and winter. Monsoon is very important to acquire data on amphibians and reptiles as well as breeding birds. Winter is particularly important for the migratory birds. The field data were collected to cover all kinds of animal and plant communities. Some of threatened wild animals were recorded from this area. Important habitats for the wild animals and plants were identified and shown on the maps. Those areas should be conserved and should keep as it is for the further development.

Appendix- 1

FLORA AND FAUNA SURVEY UNDER "PREPARATION OF DEVELOPMENT PIAN FOR MEHERPUR DISTRICT

Annex 1

Questionnaire

Flora and Fauna Survey Under "Preparation of Development Plan for Meherpur District

Location: Date & Time:

Respondent Name: Address:

Age: Sex: Religion/Cast: Education:

Livelihood status

1. How long have you been staying in this village / area?
2. Do you collect any resource (like fish, shell etc.) from the project area?
3. If yes then how frequent?
4. Do you or your family member go for hunting? Y / N
5. If yes, what are the species that you usually hunt for?
6. How frequent do you go for hunting? Daily / weekly / monthly / seasonally / yearly / ……..
7. Does any one in your village destroy bird nest / disturb / catch animals? If yes what kind of animals?
8. What do you do when you/ family members got sick? Use traditional medicine / go to K*abiraj or Boidda /* Buy medicine from shop / go to doctor.
9. Do you see following animals in your village / surrounding areas (show the color plate). If yes, how often you see or when did you see last time?

   Jungle cat…… Fishing Cat …….. Civets ……
   Jackal …….. …… Hog Badger…….. Porcupine …….
   Monkey …… …. Deer …….. Others ……
10. Do you think biodiversity (forest, plants, animals) in your area decreasing? Y / N. if yes why?
11. Do you think proposed economic zone may harm biodiversity in your area? If yes how?
12. What should do to conserve biodiversity in your area?
13. Do you know about Wildlife Act / other law? Y / N.
14. Miscellaneous Information (if any):

Name and signature of the Interviewer: