

BIODIVERSITY PROFILE OF CHARKISHOREGANJ, MUNSHIGANJ, BANGLADESH

G.W. Chowdhury, F. Ruma*, N.B. Sarker*, A. Yasmin*, W. Mobassera**,
I. Jahan**, M. Chowdhury** and Md. A. Islam**

Department of Fisheries and Marine Science
Noakhali Science and Technology University
Sonapur, Noakhali, Bangladesh and Wildlife Trust of Bangladesh
69/1 New Circular Road, Malibagh, Dhaka 1217, Bangladesh

*Wildlife Trust of Bangladesh

Malibagh, Dhaka 1217, Bangladesh

**Department of Zoology

University of Dhaka, Dhaka 1000, Bangladesh

ABSTRACT

A 13-month study was conducted in order to register the diversity of flora and fauna of Charkishoreganj village of Munshiganj district. During the study period 160 species of flora, 31 invertebrate and 127 vertebrate species were identified. The study area has an area of about 200 hectares. Of the 127 vertebrate fauna, number of species of fish, amphibians, reptiles, birds and mammals are 41, 3, 13, 58 and 12, respectively. In addition to wild flora and fauna domesticated fauna and cultivated crops were also recorded. Records were also kept on medicinal plants, and crafts and gears used for fishing. An inventory of knowledgeable persons has also been prepared. The total human population is 2163. Of the 200 ha study area, about 40 ha are occupied as human habitation and the rest are used for cultivation and other purposes. There are 550 dwelling houses, a market, two mosques and a primary school in the village.

Key words: People's Biodiversity Register (PBR).

INTRODUCTION

Bangladesh has been endowed with a rich plant diversity base because of its fertile alluvial land and a warm and humid climate. More than 6500 plant species occur in Bangladesh, of which 300 or so species are exotic and 8 are endemic. One hundred and six vascular plants have been rated as threatened (Khan *et al.* 2001). About 2200 species of algae have been recorded. The fungal flora has not been fully recorded. However, about 275 fungi have been recorded. There are about 250 species of bryophytes and 200 pteridophytes in the country. There are about 3300 species of flowering plants (angiosperm) in the country. Bangladesh has 7 species of gymnosperms; of these 3 are

threatened (1 Cycas, 2 Gnetum). Bangladesh has 3 species of rice and there are about 10,000 varieties. The main types of forests that occur in Bangladesh can be distinguished as the following: (i) Tropical evergreen and semi evergreen; (ii) Tropical moist deciduous (inland sal forests); (iii) Tidal swamp forest; and (iv) Fresh water swamp forest. Bangladesh has been tentatively divided into 30 agroecological zones, which have been subdivided into 88 agroecological sub-regions. These have been further subdivided into 535 agro-ecological units (Islam and Khan 2003).

Bangladesh possesses a wide range of invertebrates and vertebrates in its aquatic and terrestrial habitats. The total number of species that

have been recorded so far is about 6,500 (Kabir 2007). The invertebrate fauna of the country has not yet been fully recorded. A total of about 2000 protozoans, helminths, annelids and acanthocephalans have been recorded. Four hundred and seventy five terrestrial, freshwater and marine shells have been described. About 500 crustaceans, myriapods and arachnids have been recorded. Another 2000 species of insects have been recorded. There has been a fairly good stocktaking of the vertebrate fauna.

Vertebrate fauna includes the animals with a backbone i.e. the fishes, amphibians, reptiles, birds, and mammals. Bangladesh also possesses a rich diversity in vertebrate fauna, especially in the forested and wetland areas. The country has about 1600 species of vertebrate fauna (Islam *et al.* 2000), of them 677 are fishes: 251 inland and 426 marine, about 32 amphibians, 126 reptiles: 109 inland and 17 marine, about 650 birds (300 migratory) and 112 mammals: 109 inland and 3 marine.

Countries like Bangladesh should derive economic benefits from the country's rich biodiversity resource base. Unfortunately there is no proper inventory of the biological diversity of the country. Documentation, monitoring and conservation of local biodiversity and indigenous knowledge should be considered as the thrust area of activities since the said tasks remain significantly incomplete in the country. This needs extensive countrywide activities. Therefore an initiative has been taken to prepare a biodiversity register of Charkishoreganj of Munshiganj district.

MATERIALS AND METHODS

Location of the study area

Charkishoreganj incorporating an area of about 200 hectares and situated under Munshiganj Sadar Upazila of Munshiganj district. It is about 5 km northwest of Munshiganj Pourashava office.

Munshiganj district is bounded by Dhaka and Narayanganj districts on the north, Madaripur and Shariatpur districts on the south, Comilla and Chandpur districts on the east, Dhaka and Faridpur districts on the west. Munshiganj Sadar Upazila is bounded by Narayanganj Sadar, Bandar (Narayanganj) and Sonargaon upazilas on the north, Bhedarganj upazila on the south, Gazaria and Matlab upazilas on the east, Tongibari and Naria upazilas on the west (Ghosh 2003).

Topography

Charkishoreganj is an island surrounded by Dhaleshwari river on the north and west, by Ichamati River on the south and by Meghna river on the east. The area is formed by mostly of sandy-loamy soil and lacks upland. The village remains attached to Kishoreganj Char on the east. During monsoon half of the land mass goes under water. However, during lean period these areas are dried up where seasonal crops are cultivated. These are mainly riverbeds. Of the 200 ha about 40 ha are occupied as human habitation and the rest are used for cultivation and other purposes.

Climate

The climate of Charkishoreganj is equable. The annual temperature: maximum 36°C and minimum 12.7°C; total rainfall is 2376 mm and average humidity is 72%.

Human population

The total population of the study area is 2163 of which males are 1083 (50.07%) and females are 1080 (49.93%). Of the males adults are 794 (73.31%) and of the females adults are 790 (73.15%). All the villagers are Muslims and most (31.84%) of them are agriculturists. A 'Bedey' community lives on the northern side of the village. They live on boats and lead a nomadic life.

Field visits: The study area was visited once in a week during January 2003-January 2004. Twenty extra days were also spent during the holidays. The whole area was visited by walking and boating.

Data collection: Different units of studies were identified for data collection such as wild flora, cultivated flora, wild fauna, domesticated fauna, local knowledge related to biodiversity. Notes were kept on the quantity and quality of each item related to biodiversity. Data sheets and questionnaires were used to keep notes and to collect information. Data were analysed at the end of every month to assess the monthly variation (if any).

Identification: Different publications like field guides were used for the identification of flora and fauna in the field. A pair of binoculars was used in the field. Photographs were taken for future identification and for documentation. At times specimens/samples were collected for identification in the laboratory. For flora *Bangladesher Proyojoneo Gachgachra* (Dey 1995), *Baboharik Udbhidbiggyan* (Hasan 1998); for invertebrates *Simons and Schuster's Guide to Butterflies and Moths* (Daccordi et al. 1988), *General Zoology* (Storer and Usinger 1983), *Fresh Water Molluscs of Munshiganj, Bangladesh* (Begum 1980) were consulted. For fish fauna *Fresh Water Fishes of Bangladesh* (Rahman 1989), *Red Book of Threatened Fishes of Bangladesh* (IUCN 2000a), for amphibians *Red Book of Threatened Amphibians and Reptiles of Bangladesh* (IUCN 2000b), *Wildlife of Bangladesh - a systematic list with status, distribution and habitat* (Sarker and Sarker 1988) for reptiles *The Book of Indian Reptiles* (Daniel 1983), *Red Book of Threatened Amphibians and Reptiles of Bangladesh* (IUCN 2000b), *Wildlife of Bangladesh - a systematic list with status, distribution and habitat* (Sarker and Sarker 1988), for birds *The Book of Indian Birds* (Ali 1996), *Pocket Guide to Birds of Indian Subcontinents* (Grimmet et al. 2001), *Bangladesher Bonnoprani* (Khan 1996), *Red Book of Threatened Birds of Bangladesh* (IUCN 2000c), *Wildlife of Bangladesh*

a systematic list with status, distribution and habitat (Sarker and Sarker 1988) and for mammals *The Book of Indian Animals* (Prater 1980), *Red Book of Threatened Mammals of Bangladesh* (IUCN 2000d), *Wildlife of Bangladesh - a systematic list with status, distribution and habitat* (Sarker and Sarker 1988) were followed. For crops *Banglapedia* (Khair 2003) was followed. Time was spent with the knowledgeable individuals for discussion and for documenting the oral history of the area (especially on species and ecosystem). Questionnaires were used to collect information from the local people.

RESULTS AND DISCUSSION

During the present study, 160 plant species (Table 1) have been recorded. Among the 50 trees, 'Rendi Koroi' (*Albizia lucida*) was the dominant species. Of the 27 species of shrubs, banana (*Musa sepientum*) was commonly found throughout the study area. Of the 15 species of herbs, 'Jongli Kochu' (*Colocasia nymphaefolia*) and 'Thankuni/Teka Pata' (*Hydrocotyle asiatica*) were common. Of the seven species of bamboos, 'Borak' (*Bambusa balcooa*) was commonly found. Bamboos are the chief source of house building materials and agricultural implements. Of the nine species of grasses, some are used as food for domestic animals. Rice, potato and cucumber are the main cash crops. A total of 47 medicinal plants have been recorded, some are the chief source of medicine for the villagers.

Fauna, as recorded during the present study period, occupy all available habitats – such as river, pond, agricultural fields, homestead plantations, bushes, understorey, trunk of large trees, etc. Thirtyone invertebrate fauna (Table 2) have been recorded of which two are annelids, six are molluscs and 23 are arthropods. Among annelids, earthworm is commonly found and is used as fishing bait. Among six species of

molluscs, snail (*Pila globosa*) is chiefly used as poultry feed. Of the 23 arthropods, 10 are butterflies and 13 are crop insects. Some of these insects are responsible for crop damage.

Table 1. Different types of plants recorded in Charkishoreganj.

| Type | Number of species |
|-----------------------|-------------------|
| Tree | 50 |
| Shrub | 27 |
| Herb | 15 |
| Climber | 5 |
| Creepers | 9 |
| Bamboo | 7 |
| Grass | 9 |
| Epiphyte | 1 |
| Cultivated Crop | 24 |
| Freshwater plant | 7 |
| Algae, fungi and Fern | 6 (4+1+1) |
| Total | 160 |

Table 2. Number of invertebrate fauna in Charkishoreganj.

| Group | Number of species |
|------------|-------------------|
| Annelids | 2 |
| Molluscs | 6 |
| Arthropods | 23 |
| Total | 31 |

A total of 128 species vertebrate (wild) fauna could be identified (Table 3) of which 41 are fishes, three are amphibians, 13 are reptiles, 58 are birds and 12 are mammals. During monsoon, fishing activities are visible everywhere. Major fishing gears of the village are 'Moia Jal', 'Tana Jal', 'Khepla Jal', 'Polo', 'Barsi', etc. The common fishes are Indian River Shad, One-stripe Spiny Eel, Tank Goby, Ganga River-sprat, Ticto Barb, Jamuna Ailia, etc. Of the 11 species of reptiles Monitor Lizard and House Lizard are commonly found. Of 58 bird species, 53 are resident and five are migratory. Among the resident birds, Black Drongo, Green Bee-eater, House Sparrow, Tailorbird, House Crow, Common Myna, White-throated Kingfisher and Pond Heron

are commonly seen. Of the 11 species of mammals rodents are common.

Seven species of domesticated animals have also been recorded of which there are two varieties of cow, one variety of goat, one variety of sheep, one domestic dog, one domestic cat, one domestic fowl, one duck, one swan and five varieties of pigeon. Domesticated animals play a great role in the economy of the village.

Table 3. Number of vertebrate fauna in Charkishoreganj.

| Group | Wild | Domesticate | Number of species |
|------------|------|-----------------|-------------------|
| Fish | 41 | | 41 |
| Amphibians | 3 | | 3 |
| Reptiles | 13 | | 13 |
| Birds | 58 | 4 (8 varieties) | 62 |
| Mammals | 12 | 5 (6 varieties) | 17 |
| Total | 127 | 9 | 136 |

REFERENCES

- Ali, S. 1996. *The Book of Indian Birds*. Bombay Natural History Society and Oxford University Press, Bombay, India. 354 pp.
- Begum, R. 1980. Fresh Water Mollusca of Munshiganj (Bangladesh), with notes on their ecology. M.Sc. thesis (unpubl.), Department of Zoology, University of Dhaka, Bangladesh.
- Daccordi, M., P. Triberti and A. Zanetti. 1988. *Simons and Schuster's Guide to Butterflies and Moths*. Simon and Schuster, Inc, New York, London. 383 pp.
- Daniel, J.C. 1983. *The Book of Indian Reptiles*. Bombay Natural History Society and Oxford Univ. Press, Bombay, India. 141 pp.
- Dey, T.K. 1995. *Bangladesher Proyojoneo Gachgachra* (in Bengali). Janata press, Dhaka, Bangladesh. 381 pp.
- Ghosh, R. 2003. Munshiganj District. In: *Banglapedia*. (ed.) Islam, S. Asiatic Soc. Bangladesh. 2:204-214.

- Grimmet, R., C. Inskipp and T. Inskipp. 2001. *Pocket Guide to Birds of Indian Subcontinent*. Oxford Univ. Press, New Delhi, India. 360 pp.
- Hasan, H. 1998. *Baboharik Udbhidbiggyan* (in Bengali). Hasan Printing Press, Dhaka, Bangladesh. pp. 21-111.
- Islam, M.A., M. Ameen and A. Nishat (eds.). 2000. *Red List of Threatened Animals of Bangladesh*. The World Conservation Union (IUCN), Dhaka, Bangladesh. 54 pp.
- Islam, M.S. and M.H. Khan. 2003. Agroecological Zone. In: *Banglapedia*. (ed.) Islam, S. Asiatic Soc., Bangladesh. 1:116-122.
- IUCN. 2000a. *Red Book of Threatened Fishes of Bangladesh*. The World Conservation Union (IUCN), Dhaka, Bangladesh. 116 pp.
- IUCN. 2000b. *Red Book of Threatened Amphibians and Reptiles of Bangladesh*. The World Conservation Union (IUCN), Dhaka, Bangladesh. 95 pp.
- IUCN. 2000c. *Red Book of Threatened Birds of Bangladesh*. The World Conservation Union (IUCN), Dhaka, Bangladesh. 116 pp.
- IUCN. 2000d. *Red Book of Threatened Mammals of Bangladesh*. The World Conservation Union (IUCN), Dhaka, Bangladesh. 71 pp.
- Kabir, S.M.H. (pers. comm.). 2007. Editor (Fauna Section), *Encyclopedia of Flora and Fauna of Bangladesh* (in preparation). Asiatic Society of Bangladesh, Dhaka.
- Khair, A. 2003. Vegetable. In: *Banglapedia*. (ed.) Islam, S. Asiatic Soc. Bangladesh. 10:304-306.
- Khan, M.A.R. 1996. *Bangladesher Bonnoprani* (2nd vol, in Bengali). Bangla Academy, Dhaka, Bangladesh. 188 pp.
- Khan, M.S., M.M. Rahman and M.A. Ali (eds.). 2001. *Red Data Book of Vascular Plants of Bangladesh*. Bangladesh National Herbarium, Dhaka. 179 pp.
- Prater, S.H. 1980. *The Book of Indian Animals*. Bombay Natural History Society and Oxford Univ. Bombay, India. 324 pp.
- Rahman, A.K.A. 1989. *Freshwater Fishes of Bangladesh*. The Zoological Society of Bangladesh, Dhaka, Bangladesh. 364 pp.
- Sarker, S.U. and N.J. Sarker. 1988. *Wildlife of Bangladesh - a systematic List with status, distribution and habitat*. The Rico Printers, Dhaka, Bangladesh. 52 pp.
- Storer, T.I. and R.L. Usinger. 1983. *General Zoology*. Tata McGraw-Hill Publishing Company Ltd., New Delhi, India. 902 pp.