

Bird conservation in Pochamaria village of Rajshahi district of Bangladesh

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Abstract: The study shows the bird conservation approaches, number and diversity of birds species in Pochamaria village of Rajshahi district. This study described the local and migratory bird's species and their identifying number, availability in the study area, their status and how the local people maintain conservation procedure. Socio-economic condition of the study area, were also studied in relation to bird's conservation.

Key words: Bird species, conservation, Pochamaria, Rajshahi, Bangladesh.

Introduction

Wildlife is the integral part of ecosystem and furnishes into its modern shape. Throughout history, wildlife has suffered due to inconsideration of human being and their activities. People have cleared forests, destroyed large areas of wildlife habitat (Meijaard, 1999). These heroic acts disrupted the diversity of wildlife population at large. In addition environmental pollution aggravated the process of wipe out of wild species. Conservation of wild animals has become mandatory for the environment (Meijaard *et al.*, 2006). Deserts, rainforests, plains, and other areas - including the most built-up urban sites - all have distinct forms of wildlife. About 20% of birds species originally resided in this country have not been seen for the last 20 years, 69 species are in IUCN red list of endangered species as under serious threat towards extinction and only 60 (10%) known bird species are secure in their status (BSB 2001).

Ornithological research often involves the selective collection of birds in the field. Most birds specimens are preserved in natural history museums or biological information are collected in data banks for future studies. Museum collections are managed repositories for whole specimens and their parts, whereas biological banks are collections of histologically or cryobionically preserved organs, tissues, cells or embryos for human benefit or entertainment. Information obtained from these specimens enables accurate identification of species and understanding of evolutionary relationships, genetics of wild populations, population structure and dynamics, comparative anatomy and physiology, adaptation, behavior, parasites and diseases, economic importance, geographic and microhabitat distributions, and ecology of birds in natural or disturbed habitats. Knowledge from ornithology promotes knowledge in other biological sciences and affects policies concerning game and non-game species, endangered species, economically important species, habitat conservation, ecosystem analysis, pest and disease control, predator control, and domestication. Many nations have passed legislative bindings to protect and set aside Safari parks and reserved wildlife zones in their territory (Jepson *et al.* 2002).

Very few study of conservation in bird has started locally or internationally likes - Great Blue Heron (*Ardea herodias*) in British Columbia, Canada (Butler *et al.* 2011). Observations on species limits in the Great Egret (*Ardea alba*) complex (Pratt, 2011). Monitoring heron populations in Italy was 1972-2010 (Fasola *et al.* 2011). On the other hand, Newton (2008) observed in many species of birds, both sub adults and non breeding adults, are more vagile,

overall, than adult breeders. Bildstein *et al.* (2008) and Mace *et al.* (2008) studied bird conservation status, analysis of population trend and monitoring. Turner (2011), studied about on nineteen species of herons with their checklist and status in East Africa.

Materials and Methods

Pochamaria is situated in the Barind tract approximately 200 kilometers northwest of Dhaka and 35 kilometers northeast of Rajshahi district. Puthia upazila town is approximately 17 kilometers in the south of this village. International boundary (with India) is also about 28 kilometers to the south. Pachamaria lies between 88⁰ and 52.722' of east longitude and 24⁰ and 29.01' of north latitude and has an area of approximately 500 acre measures have been implemented to ensure safety of bird species around the world. Primary data collected by the several procedure likes- household survey, field visit, mapping, photograph and group discussion during 2007 - 2009. Population census 2001 and district series (Rajshahi) 2001 were sourced for demographic and socio-economic information. Information on the number of birds, their habitat and nature has been collected from Pochamaria Bird Sanctuary.

Three years (2007, 2008 and 2010) survey program was conducted for field data collection. Due to the time and resource constraints, a key informant survey with community representatives was implemented to collect information on demography livelihood status, present agriculture practice and other social issues of Pochamaria as well as identifying vegetation coverage and type of vegetation roost sites (habitat), ownership of roosting tress and land parcel etc. list of key information including their occupation are listed in the study.

Results and Discussion

Pochamaria falls in the great chalan beel area, it has got similar features of wet land habitat as number of small medium size beels and canals and seasonally inundated lands. Where all types of people do fishing in the wet season, dries up by November leaving abundant supply of freshwater flora and fauna species including varieties of local fish species, crab, snails etc. (in shallow water patches) as well as vast of land for cultivation. The village has dense vegetation coverage within the homestead areas including large trees as Shimul (*Bombax sp.*), Koro (*Albizia sp.*). Mahogoni (*Swietenia sp.*), Mango (*Mangifera indica*), Tetul (*Tamarindus indica*) and Bamboo clump (*Bambusa spp.*) etc. These features attributed Pochamaria as a suitable habitat for local and migratory birds.



A



B



C



D



E



F

Fig. 1. (A) Locally newly established a Bird Sanctuary at Pochamaria (One part); (B) Asian Openbill and flying fox on a Shimul tree (*Bombax ceiba*) at Pochamaria; (C) Asian Openbill, Great Egret and Yellow-wattled Lapwing are feeding together in one food source at Pochamaria; (D) 4 Four eggs of Paddy field Pipit in the study area; (E) An example of banner from saving committee is saying, “Birds are our guests, let us ensure their safety” and (F) Billboards by saving committee are requesting to save birds.

Pochamaria village set examples of conservation initiatives for a Bird Sanctuary, which produces success with an increasing number of migratory birds each year during winter season. This year a significant number of Asian Openbill (1000-1500) and back crowned Night heron (500-700) are still found at the end of August 2008 during the survey. Cormorants and herons have become permanent residents for the last couple of years but this is the second time that Asian Openbill are staying for a longer period. Also some nests of pond heron are found in the bamboo clump near the Bishnu-Joggeshar pond (Fig.1A). We recorded the estimated number of migratory and local birds species in the study area (Table 1). The villagers believe that like cormorants, Asian openbill, heron and the other local birds will reside permanently in Pochamaria with an increasing number each year.

So it is understood that Pochamaria has a great potentiality to sustain as a Bird Sanctuary if appropriate institutional supports are provided to its successful implementation of conservation measures.

Socio and environmental situation of the “Pochamaria Bird Sanctuary”

Abundance of Plants: There is no national forestry in the study area. Maximum area covered by homestead, agro and road side forestry. Local old people reported that a rapid depletion of these vegetation occurred during 1980s. Group discussion and memory recall indicated that the process of deforestation and removal of trees was due to rapid population growth and increased demand as well as hard ship during that period. Now, in recent years (2005-2009), local forestation and tree plantation in and around homesteads have started. The local villagers were reported to be motivated by tree plantation drives and also by high prices of timber, fruits, fuel and food plants during the last two decades. The rural appraisal and field visit data indicates that total tree coverage in the study area during 2008 to 2009 were 50 acres which includes agroforestry - 20 acres, homestead garden – 20 acres, jungle – 6 acres and others (road sides, institutes) 4 acres.

Habitat of birds: In the local and migratory birds of “Pochamaria Bird Sanctuary” live together in local environment. All kinds of trees used by local birds for roosting but migratory birds roosted in specific trees. Some birds especially Asian Openbill roost on a few Shimul trees (Fig.1B) within half a kilometer of the market which extends towards south up to the Naser Mondol pond with two Shimul trees on the bank of it. Shimul branches are soft and comfortable which makes its favorite roosting place for birds.

Birds move around nearby beel, paddy field, canals and rivers (Baronui, Atrai etc) for food (Fig.1C) Some migratory birds take their meals of local small fish species (like- olive barb, glassy fish, bele tengra, shrimp, telapia, spotted snakehead, kakila etc.) crab, snail and different types of insects in the marshy land, agriculture field and watercourses. On the other hand, local birds collected their foods from the wild and other fruit plants, insects, crops etc.

The majorities of our resident birds lay their eggs and rear their young (Fig.1D). But migratory or locally migratory birds do not make their nest in here, except Indian

cormorant.. Most species commence their nesting operations beginning of March.

Rainfall: Rains are frequent and heavy during the monsoon season. A five-year data (2004-2008) has been collected from meteorological regional office, Rajshahi. Rainfall data comparatively heaviest in terms of depth during the months of May to October (monsoon period) with monthly depths ranging from 85 mm to 503 mm. Rain intensity in terms of duration and frequency is also most prominent during the monsoon season. Rain starts intensifying in the month of May and become more intense up to month of October, with July as the heaviest month and May as the lightest rainy month. Before and after the monsoon season, sporadic rains occur during the latter months of spring season (i.e., April) and early month of winter season (i.e., November). Evidently, the visitor use of the Sanctuary as well as management activities are highest during the winter and spring seasons, particularly during the months of November to April – a good 6 months for outdoor activities in the Study area.

Temperature: Temperature is another climatic factor effecting the growth and development of biological resources in the Sanctuary. The temperature in the study area classified into three and may also be associated with the three climatic seasons. Dry-hot temperature occurs during the spring season and ranges from 20.4°C (average minimum) to 37.1°C (average maximum). Monthly temperature during spring can go down to as low as 18.92°C in the month of March and go up to as high as 35.84°C in the month of May, making May the hottest month of the year. Cold temperature occurs during winter season and range from 10.2°C (average minimum) to 29.8°C (average maximum). Monthly temperature during winter can go down to as low as 10.7°C in the month of January and go up to as high 29.5°C in the month of November (Data collection from meteorological regional office, Rajshahi; 2004-2008).

Highlighting of Pochamaria bird species: The villagers reported Pochamaria has turned into a “Bird Sanctuary” day by day. We listed the number of local and migratory birds species and their status

Conservation Initiatives from within the Community of Pochamaria village

First the local young community thought of conservation imitative and eventually has become a successful venture because of cooperation and participation from all levels of the community in conservation activities, which was actually inevitable to ensure safety for birds (Fig.1E & 1F). Bird saving committee of Pochamaria implemented the following decisions, which have been taken in their committee meeting.

1. Define and divide the whole conservation area into segments and equip with banner or billboard requesting to save birds.
2. Communicate each and every villager personally to aware them.
3. Request for not to cut trees which are important in roosting or nesting perspective.
5. Make announcement in the conservation area to aware people.
6. Continuous monitoring with volunteers from youth club.

7. Temporary fencing around the protected area.
8. Guide visitors and keep them away from doing any harm to birds.
9. Update media people time to time about the situation.
10. Guard the area at night –committee members with other people walk around the whole area with different groups in different times.
11. Committee influences local people to start forestation program in the study area.

All the activities monitored by “Bird Conservation Office”. Youth club members joined hands with the saving committee to voluntarily participate in these conservation activities. Another general committee formed with 101 members including people in the neighboring village community and people working in the field at places for awareness building among them.

Table 1. Bird species recorded in Pochamaria Bird Sanctuary

Local Name of Bird's	English Name of Bird's	Scientific Name of Bird's	Approx no.	Residence status
Shamuk Bhangra or Shamuk-khol	Asian Openbill/ Openbilled stork	<i>Anastomus oscitans</i>	1500	Migratory
Nishi Bok or Waak	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	2000	Resident and migratory
Kana Bok	Pond Heron	<i>Ardeola grayii</i>	800	Resident and migratory
Jathua or Boro Sada Bok	Great Egret	<i>Casmerodius albus</i>	550	Resident and migratory
Majhari Bok	Intermediate Egret	<i>Mesophoyx intermedia</i>	150	Resident and migratory
Chhoto Sada Bok	Little Egret	<i>Egretta garzetta</i>	250	Resident and migratory
Gobok	Cattle Egret	<i>Bubulcus ibis</i>	50	Resident and migratory
Kastechora	White Ibis	<i>Threskiomis melanocephala</i>	12	Migratory
Tila Ghughu	Spotted Dove	<i>Streptopelia chinensis</i>	850	Resident
Dhabol Ghughu	Ringed Dove	<i>Streptopelia decaocto</i>	200	Resident
Tia	Rose-ringed Parakeet	<i>Psittacula krameri</i>	150	Resident
Brihot Pankowri	Great Cormorants	<i>Phalacrocorax carbo</i>	500	Migratory
Pankowri or Chhoto Pankowri	Little Cormorant	<i>Phalacrocorax niger</i>	700	Migratory
Majhari Pankowri	Indian Cormorant	<i>Phalacrocorax fuscicollis</i>	400	Resident
Haldey Pakhi	Black Hooded Oriole	<i>Oriolus xanthornus</i>	100	Resident
Goyar	Darter or Snake-bird	<i>Anhinga melanogaster</i>	20	Migratory
Nilavo or Bora Basanta Bauri	Blue throated Barbet	<i>Megalaima asiatica</i>	80	Resident
Chhoto Basanta Bauri	Coppersmith Barbet	<i>Megalaima haemacephala</i>	50	Resident
Jhuti Shalik	Jungle Myna	<i>Acridotheres fuscus</i>	300	Resident
Bhat Shalik	Common Myna	<i>Acridotheres tristis</i>	400	Resident
Goborey Shalik	Asian Pied Starling	<i>Sturnus contra</i>	2500	Resident
Kath or Badami Shalik	Grey-headed Starling	<i>Sturnus malabaricus</i>	30	Resident
Chhoto Machhranga	Common Kingfisher	<i>Alcedo atthis</i>	200	Resident
Sadabook Machhranga	White-throated Kingfisher	<i>Halcyon smyrnensis</i>	300	Resident
Oksha or Machhmaral	Grey-headed Fish Eagle	<i>Ichthyophaga ichthyaetus</i>	04	Resident
Daar Kak	Jungle Crow	<i>Corvus macrorhynchos</i>	3000	Resident
Pati Kak	House Crow	<i>Corvus splendens</i>	40	Resident
Kapassi	Black Shouldered Kite	<i>Elanus caeruleus</i>	10	Resident and migratory
Nilkantha	Indian Roller	<i>Coracias benghalensis</i>	12	Migratory
Suichora	Common Green Bee-eater	<i>Merops orientalis</i>	36	Resident
Towfik or Fotikjol	Common Iora	<i>Aegithina tiphia</i>	16	Resident
Dhushar Khonjani	Grey Wagtail	<i>Motacilla cinerea</i>	22	Migratory
Sada Khonjoni	Pied Wagtail	<i>Motacilla alba</i>	14	Migratory
Kutum Pakhi or Harichacha	Rufous Treepie	<i>Dendrocitta vagabunda</i>	30	Resident
Dauk or Panpaira	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	08	Resident
Sat Bhaila	Jungle Babbler	<i>Turdoides striatus</i>	110	Resident
Doel	Magpie Robin	<i>Copsychus saularis</i>	50	Resident
Niltuni	Purple Sunbird	<i>Nectarinia asiatica</i>	24	Resident
Moutushi	Purple-rumped Sunbird	<i>Nectarinia zeylonica</i>	18	Resident
Fuljhuri	Pale-billed Flowerpecker	<i>Dicaeum erythrorhynchos</i>	16	Resident
Bulbuli	Red-vented Bulbul	<i>Pycnonotus cafer</i>	2000	Resident
Sipahi Bulbuli	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	200	Resident
Charui	House Sparrow	<i>Passer domesticus</i>	1200	Resident
Tuntuni	Tailor Bird	<i>Orthotomus sutorius</i>	120	Resident
Ratchora Pakhi	Indian Nightjar	<i>Caprimulgus asiaticus</i>	12	Resident
Boro Kaththokra	Lesser Golden-backed Woodpecker	<i>Dinopium benghalense</i>	20	Resident
Chhoto Kaththokra	Fulvous-breasted Woodpecker	<i>Dendrocopos macei</i>	28	Resident
Fingey	Black Drongo	<i>Dicurus macrocercus</i>	2500	Resident
Latora	Ashy Woodswallow	<i>Artamus fuscus</i>	08	Migratory
Chhoto Sat Soheli	Small Minivet	<i>Pericrocotus cinnamomeus</i>	26	Migratory
Dhushurmatha Bontuni	Ashy Prinia	<i>Prinia socialis</i>	20	Resident
Shetakkhi or Babunai	White-eye	<i>Zosterops palpebrosa</i>	06	Resident
Gangra	Great Tit	<i>Parus major</i>	30	Resident
Kanakuka or Kankua	Greater Coucal	<i>Centropus sinensis</i>	18	Resident

Table (Contd.)

Local Name of Bird's	English Name of Bird's	Scientific Name of Bird's	Approx no.	Residence status
Boro Kaththokra	Lesser Golden-backed Woodpecker	Dinopium benghalense	20	Resident
Chhoto Kaththokra	Fulvous-breasted Woodpecker	Dendrocopos macei	28	Resident
Fingey	Black Drongo	Dicrurus macrocercus	2500	Resident
Latora	Ashy Woodswallow	Artamus fuscus	08	Migratory
Chhoto Sat Soheli	Small Minivet	Pericrocotus cinnamomeus	26	Migratory
Dhushurmatha Bontuni	Ashy Prinia	Prinia socialis	20	Resident
Shetakki or Babunai	White-eye	Zosterops palpebrosa	06	Resident
Gangra	Great Tit	Parus major	30	Resident
Kanakuka or Kankua	Greater Coucal	Centropus sinensis	18	Resident
Kokil	Koel	Eydynamys scolopacea	10	Resident
Chokhgelo Pakhi	Common Hawk Cuckoo	Hierococcyx varius	08	Resident
Boukotha Kow Pakhi	Indian Cuckoo	Cuculus micropterus	12	Resident
Sorgom	Banded Bay Cuckoo	Cacomantis sonneratii	04	Resident
Nak-kati or Nakuti	Palm Swift	Cypsiurus balasiensi	30	Resident
Ababil	Barn Owl	Hirundo rustica	16	Resident
Kutorey Pencha	Spotted Owlet	Athene brama	10	Resident
Bhutum Pencha,	Brown Fish Owl	Ketupa zeylonensis	24	Resident
Bhuvan Chil	Pariah Kite	Milvus migrans	30	Migratory
Shankha Chil	Brahminy Kite	Haliastur indus	10	Migratory
Baaz	Shikra	Accipiter badius	04	Migratory
Lalbook Chotok	Red-breasted Flycatcher	Ficedula parva	24	Resident
Dhushar Chotok	Greyheaded Canary Flycatcher	Culicicapa ceylonensis	14	Resident
Kalokhupa Chotok	Black-naped Monarch	Hypothymis azurea	08	Resident
Laejnachani	White-throated Fantail	Rhipidura albicollis	06	Resident
Chhoto Gudhuka	Common Woodshrike	Tephrodornis pondicerianus	06	Resident
Lejjhula or Lal o Sada Sipahi	Paradise Flycatcher	Terpsiphone paradisi	04	Resident
Babui Pakhi	Baya	Ploceus philippinus	1400	Resident
Munia	White-rumped Munia	Lonchura striata	200	Migratory
Tila or Chitrito Munia	Scaly-breasted Munia	Lonchura punctulata	80	Migratory
Tulika	Paddyfield Pipit	Anthus rufulus	250	Resident
Bhorot Pakhi	Rufous-winged Bushlark	Mirafra assamica	50	Resident
Kalumatha Koshai Pakhi	Long-tailed Shrike	Lanius schach	24	Migratory
Badami Koshai	Brown Shrike	Lanius cristatus	30	Resident
Huttee	Yellow-wattled Lapwing	Vanellus malabaricus	1200	Resident
Ban Murgi	Red Jungle Fowl	Gallus gallus	04	Resident
Kayem	Purple Moorhen	Porphyrio porphyrio	20	Migratory
Jalpipi	Bronzewinzed Jacana	Metopidius indicus	70	Resident
Kadakhocha	Fantail Snipe	Gallinago gallinago	800	Resident
Hargila	Adjutant Stork	Leptoptilos dubius	04	Resident
Moibuz	Honey Buzzard	Pernis ptilorhyncus	08	Resident

This work is a foundation for the establishment of a complete 'Bird Sanctuary' of modern approach. A comprehensive biological data including genetic intervention on bird population and their habitat is still a subject of further study. To determine appropriate management strategies in future, more research and wildlife surveys have to be carried out in this area. Nevertheless it will not be exaggeration to say that the work has opened up the rout to overcome the entire future problem in this enterprise.

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