

Cormorant conservation in a local area of Bangladesh

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Abstract: In the recent year Cormorant conservation began in world wide. Indian Cormorant (*Phalacrocorax fuscicollis*) one of them which is showing it characters as like as a local bird's. This study observed roosting, feeding and nesting behavior of Cormorant in the Barind tract approximately 200 kilometers northwest of Dhaka and 35 kilometers northeast of Rajshahi district. It was observed that Cormorants roosted on Bamboo clump, *Bombax ceiba*, *Mangifera indica*, *Syzygium cumini*, *Cocos nucifera*, *Tamarindus indica*, *Albizia procera*, *Acacia nylotica*, *Amoora rohituca*, *Swietenia mahogany*, *Dulbergia sissou* trees. Local small fish species like glassy fish, bele, tengra, shrimp, pale carplet, corica soborna, telapia, spotted snakehead, kakila etc. are the food materials for Cormorant in the study area. Most species (local birds) commence their nesting operations beginning of March but Indian Cormorant starts their nest July to September and laid two eggs of each pair.

Key words: Cormorant, Local area, Conservation, Bangladesh.

Introduction

The study area of 'Pochamaria' is a soggy green paradise, an ideal home for a large variety of birds. Scores of migratory species undertake a perilous journey to make a seasonal home in this ecosystem, the most famous of them being the magnificent but nearly extinct Cormorant (*Phalacrocorax carbo*, *Phalacrocorax niger*, *Phalacrocorax fuscicollis*). This interlocking ecosystem of woodlands, swamps, wet prairies and dry Savannah is considered to be one of the world's richest heronries, where thousands of birds get busy courting, mating and nesting.

People in Pochamaria used to kill birds and eat them before but now they have become aware of the importance of the goldmine that they have. The local youth club members, teachers and students of the local Degree college and schools, farmers, day labor, van puller and other community people joined hands and formed a bird saving committee to protect birds from being killed, captured or hunt as well as to keep the habitat undisturbed as much as possible. It was a remarkable initiative from the community, which eventually has gained considerable success, as the number and variety of birds are increasing each year. Still today the committee in cooperation with the community people has been trying to put their best effort for its sustainability. But we commended that institutional support is a must now, at this stage to keep it sustain

Cormorant species are increasing day by day in world wide. Double-crested cormorant (*Phalacrocorax auritus*) populations are increasing (Craven and Lev 1987, Vermeer and Rankin 1984), little research has been done on their winter roost fidelity and movements (King et al. 1995). Cormorants wintering in the Delta Region of Mississippi commonly forage in commercial Channel Catfish (*Ictalurus punctatus*) ponds and come into conflict with catfish producers (Stickley and Andrews 1989, Stickley et al. 1992). Most attempts to reduce cormorant predation involve the use of bird-scaring devices at the catfish ponds, but these efforts are usually short term in effectiveness because the birds rapidly habituate to the devices Mott et al. (1992), however, found that cormorants could be easily dispersed from their night roosts by using pyrotechnics. King et al. (1995) and Custer and Bunck (1992) found that Double-crested Cormorants prefer to

roost during winter and breed near their main food source. To develop adequate strategies to limit cormorant damage in the Delta Region of Mississippi biologists need to know if individual cormorants show fidelity to the same night roost throughout the winter. Therefore, data from this study will be used to determine if cormorants stay in one roost during the entire winter or if they regularly change roosts and foraging areas.

Materials and Methods

The study area 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. Pochamaria lies between 88° and 52.722' of east longitude and 24° and 29.01' of north latitude and has an area of approximately 500 acre measures have been implemented to ensure safety of bird species.

Primary data collected by the several procedure likes-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

Habitat is now a growing concern for overall environmental management. Massive campaign programs have been initiated by worldwide conservation activists in cooperation with Government, non- government and voluntary organization (e.g. bird club, local youth club etc.) for awareness building among the general people and the decision makers and different intervention

Pochamaria has turned into a heronry about a decade back when a small flock of Cormorants started roosting at first and then started breeding in the area later on. (Table 1) Next few years' Indian Cormorants became permanent resident with increasing number each year. In the mean time many other new varieties introduced in Pochamaria, including Asian Openbill and different types of Egret and

Hérons. We listed Cormorant as migratory to Pochamaria in winter time (October to November) and go back April-May (except *Phalacrocorax fuscicollis*). But this year some Asian Openbills and few Herons have been found even at the end of August (2010). It could be possible that the other birds might stay permanently if the existing habitat condition prevails.

Table 1. Habitat of *Phalacrocorax* spp. at the study area

Local Name of Birds	Scientific Name of Birds	Common Food	Approximate No.	Roosting & Nesting of Birds		
				Season & No. of egg	Roosting trees	Nesting trees
Brihot Pankowri	<i>Phalacrocorax carbo</i>	All most fish	500	–	<i>Mangifera indica</i> , <i>Swietenia mahogany</i> , <i>Syzygium cumini</i> <i>Tamarindus spp.</i> etc.	–
Majhari Pankowri	<i>Phalacrocorax fuscicollis</i>	All most fish	400	July to September 02	<i>Mangifera indica</i> , <i>Swietenia mahogany</i> , <i>Syzygium cumini</i> <i>Tamarindus spp.</i> etc.	<i>Mangifera indica</i> , <i>Swietenia mahogany</i> , <i>Syzygium cumini</i> etc.
Pankowri or Chhoto Pankowri	<i>Phalacrocorax niger</i>	All most fish	700	–	<i>Mangifera indica</i> , <i>Swietenia mahogany</i> , <i>Syzygium cumini</i> <i>Tamarindus spp.</i> etc.	–

Roosting Sites: This heronry is supported by few bamboo clumps within the compound in a part of village by the side of the Pochamaria market and around Bishnu-Joggeshar pond and the local road that goes towards Taherpur. Bamboo clump also extends towards south-east of the market around the Mollpukur and both side of local Sannyashitala road. Some birds especially Cormorant roost on a bamboo clumps (Fig. 1A), few Shimul trees (*Bombax ceiba*) within half a kilometer of the market which extends towards south up to the Mondol pond. Shimul branches are soft and comfortable which makes its favorite roosting place for birds.

It is observed that Cormorants also roosted on *Mangifera indica*, *Syzygium cumini*, *Cocos nucifera*, *Tamarindus indica*, *Albizia procera* (Fig. 1B), *Acacia nylotica*, *Amoora rohituca*, *Swietenia mahogany*, *Dulbergia sissoo*. A participatory habitat mapping was implemented in identifying roosting sites.

Food availability: Birds move around nearby beel, paddy field, canals and rivers (Baronui, Atrai etc) for food during day time leaving village earliest in the morning and start to back in the early evening. They search for local small fish species like glassy fish, bele, tengra, shrimp, pale carplet,

corica soborna, telapia, spotted snakehead, kakila etc. in the marshy land, agriculture field and watercourses. It is reported that there is an abundant supply of those species in the beel area when floodwater drains out (Fig. 1C).

Nesting: The majorities of our resident birds lay their eggs and rear their young. But in the past, memory recall data ensure that migratory or locally migratory birds do not make their nest in the study area. In resent year (August, 2010) Indian cormorant has started their reproduction and make their nest with colonies (Fig. 1D). The periods favored by different species vary. Most species (local birds) commence their nesting operations beginning of March but Indian Cormorant starts their nest July to September and laid two eggs of each pair (Fig. 1E). Limitation of disturbing activities around the breeding areas of protected species is not always possible, if these activities are economically important and have, in addition, positive effects on protecting the habitats of those protected species. Searching for optimal solutions making commercial exploitation of natural resources compatible with biodiversity conservation is thus of concern to managers and policy makers.



A



B



C



D



E

Fig. 1. (A) Cormorant and Median egret sitting on bamboo clump (*Bambusa sp.*) in the study area, (B) Great cormorant sitting on a Rayne tree (*Albizia procera*) at Pochamaria, (C) Cormorants are landing a feeding zone (Kumar gara beel) at Pochamaria, (D) The nest of Indian Cormorant on a mango tree in the study area, and (E) Indian Cormorant at nest in the study area.

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