BIODIVERSITY OF MIGRATORY BIRDS IN KHUTAGHAT, RATANPUR DIST. BILASPUR (C.G.)

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ABSTRACT

The exploration of bird migration has entered a new era with individual based tracking during multiple years. Attempt has been made to collate available information pertaining to migratory patterns of long distance migrating birds to India in order to analyse the variation amongst different species. While annual timing of migration vary much less between repeated journeys of the same individual as compared to different individuals, there are considerable variations in the routes of different varieties of birds within India. The necessity of birds migration, threats encountered and conservation practices have been critically assessed.

KEYWORDS: The exploration migration critically assessed.

INTRODUCTION

Migration is the regular, seasonal movement of populations from one geographic location to another and is common among most varieties of birds. It is marked by the eventual return to the original place of departure and is most evident among certain bird species that usually follow a yearly cycle. Donald (1952) studied migration of birds across the Himalaya and Ali (1962) on Wagtails in Kerala. In between 1963 and 1969, Biswas studied bird migration in southern West Bengal with a view to collect data regarding the pattern of migration, period of stay in the wintering area, time taken for journey etc. (ZSI 1991). While George (1964) studied the same in Bihar, Mathew (1971) reviewed the recovery data obtained by the
BNHS’s bird migration study project. Khacher (1978) studied bird migration across the Himalaya. Rainfall has great influence on the bird population (Bayliss 1989). Birds migrate for many reasons that include the need to travel to areas where food resources are at their peak abundance. The food of the birds varies and is different not only in respect of different birds, but also in respect of different seasons. The adaptive value of migration with fluctuating food sources has earlier been well documented (Lack 1968; Alerstam et al. 2003). Survival challenges encountered on these journeys may be responsible for a majority of annual adult mortality in land birds (Sillelt and Holmes 2002). Newton (2008) reported that there was increased mortality during long migrations of avifauna.

**Why do birds migrate?**

Birds migrate to move from areas of low or decreasing resources to areas of high or increasing resources. The two primary resources being sought are food and nesting locations.

Birds that nest in the Northern Hemisphere tend to migrate northward in the spring to take advantage of burgeoning insect populations, budding plants and an abundance of nesting locations. As winter approaches and the availability of insects and other food drops, the birds move south again.
Escaping the cold is a motivating factor but many species, including hummingbirds, can withstand freezing temperatures as long as an adequate supply of food is available.

**Types of migration**

Birds generally migrate in flocks. Most migrations are latitudinal, i.e. from North to South; also some migrate from East to West. It is used to describe movements of bird populations. One way to look at migration is to consider the distances travelled.

- **Short-distance migrants**: May move only a short distance, as from higher to lower elevations on a mountainside.
- **Medium-distance migrants**: Some species may cover distances that span from one to several states.
- **Long-distance migrants**: Birds that typically have ranges that extend from one continent in the summer to another in the winter.

The pattern of migration can vary within each category, but is most variable in short and medium distance migrants. The long-distance migrants are mainly insect-eaters and waders, which follow set migration patterns. Seed-eaters, on the other hand, have more random movements, while fruit-eating birds are generally resident.

**Timing of migration**

Timing of migration is a mix of internal stimulus which results in a feeding binge to put on fat to feel that they have put on enough fat to provide them energy throughout the journey and then the tendency to aggregate into flocks. Once the pre-migration flock is gathered, the feeding continues while the birds wait for suitable weather conditions. Thus, while the birds’ internal clock probably releases the hormonal triggers at a fairly accurate date each year, the availability of food and the presiding weather conditions decide when the migration starts and hence when the first spring migrants arrive and the last autumn ones leave. Migration may be either during the day or night. Larger birds generally migrate by day and smaller ones by night. Birds of prey, swallow, and crows migrate by day. Wildfowl, pelicans, storks, swifts etc are diurnal migrants. Nocturnal migrants include water-birds, cuckoo, flycatchers, thrushes, warblers, orioles, buntings, most songbirds etc. It is believed to be some hormonal stimulus to migrate, resulting, at least in the spring, in the development of the gonads. Other stimuli appear to involve temperature, daylight/darkness ratios and an internal clock. The timing of migration is usually a mixture of internal and external stimulus.
How does the weather affect migration?

Weather is the number one driving factor for migration. Bird’s sensitivity varies towards temperature and other environmental conditions. There is indication that a following wind is of major importance. A clear sky also helps, but is of secondary importance. Birds will take flight in overcast days if the wind is good. For hawks and other soaring birds, updrafts are of extreme importance. They can't go very far flapping those heavy, wind-resistant wings. That's why they usually fly parallel to north-south mountain ridges that will produce updrafts with the wind. They gain altitude in one updraft and glide towards the next one. That's how some raptors will migrate all the way to Argentina and back. Birds also try to avoid storms and foggy weather whenever possible. Every year thousands of birds die on severe storms, disoriented or exhausted, many get lost at sea. To avoid this, northern migration of great ocean crossers American Golden-Plovers is made inland, following the rivers in the Amazon Basin and the Mississippi valley. This is much safer than doing the North Atlantic Ocean cross again, as the weather there is still in the grip of winter and there's nowhere to land. Migration can be acquired, abandoned or prolonged by a species, depending on conditions along their migratory routes (Able and Beltoff 1998). According to BBC news South East Wales (July 12, 2012) unpredictable weather had altered bird migration patterns, with many arriving in Wales weeks earlier than expected. The report further commented “2012 has been a year of unpredictable weather and many birds have already been affected”. Sudden changes in the weather can be disastrous for birds. Many birds prefer to fly at a higher altitude while migrating. This is because winds usually prevail at higher altitudes and at the same time, the cold temperature at these altitudes helps them in diffusing the body heat, which is generated by their flight muscles.

Arrival of migratory birds in India

Avian migration is a natural process, whereby different birds fly over distances of hundreds and thousands of kilometers in order to find the best ecological conditions and habitats for feeding, breeding and raising their young. During December several birds from the colder regions are spotted at several places in India. Depending on species and country of origin, there are different migration patterns. While small birds like flycatchers arrive in early November, wagtails usually arrive in mid-October. Ducks turn up by end of October or early November in huge numbers. It has been observed that extended rainfall, beyond monsoon, delayed arrival of birds who find difficult to fly in the rain. The bird’s migration has been categorized into winter migrants, summer migrants and passage migrants. Birds visiting the
lake between November and February are the winter visitors. Some residential and migratory birds breed or remain in the lake in summer and are called summer visitors. A brief account of the migratory birds in India is summarized in Table 1. Presently, probably due to the climate change, departure dates of many of the migratory species are postponed and this has an alarming significance because food cycles and arrival times of migrants in the tropics become synchronized. Almost 80 per cent of migratory birds did not turn up in 2010. At least 15-16 varieties of ducks arrive every year but in 2010 there were hardly any despite of abundance of water. The only species present in the year were the northern shoveller, a few wigeons, the brahminy shelduck and pintails. Species abundance and diversity both have reduced. Waders (long-legged wading birds), little-ringed plovers and others like the kentish plovers, greenshank and redshank were only a few in 2010. Birds of prey, such as the montagu harrier, pale harrier, hen harrier and the pied harrier that usually come from Eastern Europe, Central, Northern Asia and Southeast Asia did not arrive in 2010. The biggest change has been observed in the migratory patterns of water birds. Due to changing crop pattern, the number of cranes coming to India over the years has reduced by as much as 75 per cent. As many as 4,000-5,000 bar-headed geese were sighted in the past. But in the last two years, flocks of only 40-50 of these birds were seen at one time. The number of geese has definitely reduced by 50 percent (Agarwal 2011).

**MATERIAL AND METHOD**

Khutaghat is one of the most important place and agro climatic zone, because thousands of ducks and other migrants are choosing as their wintering during post monsoon season.

Systematic list of the birds of this region is lacking. Hence the present study documented the avian fauna of this dam from mainly direct observation and local informer interaction about counting status of resident and migratory birds from post monsoon September 2016 to post February 2017. Study area visited 5 times in a month, the observation were made between 06.00 hrs to 12.00 hrs morning and 04.00 hrs to 06.00 hrs evening and birds were identified. Some birds are residents and they are breeding in the different habitat; of Chhattisgarh, but khutaghat dam they are seen only for limited time and as migrants, hence they are included in category of local migrants or movements. Winter visiting from the other region of Indian Sub-continent and Central Asian Countries are included in the category of Migratory.
RESULT
A total of 9 species of birds belonged to 9 families, during study all recorded avian fauna has classified into Resident birds, Local Movement birds, Migratory birds, Straggler, Common and Uncommon (Table No.1), were recorded from the khutaghat dam.

Table No. 1: Checklist birds recorded in Khutaghat.

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black headed ibis</td>
<td>Threskiornis melanocephalus</td>
<td>Threskiornithidae</td>
</tr>
<tr>
<td>2</td>
<td>Openbill stork</td>
<td>Anastomus osatans</td>
<td>Ciconiidae</td>
</tr>
<tr>
<td>3</td>
<td>Rosy starling</td>
<td>Pastor roseus</td>
<td>Sturnidae</td>
</tr>
<tr>
<td>4</td>
<td>Pintail</td>
<td>Anas acuta</td>
<td>Anatidae</td>
</tr>
<tr>
<td>5</td>
<td>Indian pitta</td>
<td>Pitta brachyura</td>
<td>Pittidae</td>
</tr>
<tr>
<td>6</td>
<td>Small pratincole</td>
<td>Glareola lactea</td>
<td>Glareolidae</td>
</tr>
<tr>
<td>7</td>
<td>White-rumped shama (female)</td>
<td>Copsychus malabaricus</td>
<td>Muscicapidae</td>
</tr>
<tr>
<td>8</td>
<td>Yellow throated sparrow (male)</td>
<td>Gymnoris xanthocollis</td>
<td>Passeridae</td>
</tr>
<tr>
<td>9</td>
<td>Pale billed flower pecker</td>
<td>Dicaeum erythrorhynchon</td>
<td>Dicaeidae</td>
</tr>
</tbody>
</table>

Highest numbers of birds were observed during mid-month of October to Post January and lowest in post January to upcoming summer.

DISCUSSION
After very long journeys they face countless dangers. These may include the destruction and degradation of natural habitats, the loss of critical stopover sites such as wetlands, illegal killing, poisoning and pollution. We have identified the sectors that affect migratory birds the most have been identified as those of agriculture, energy, hunting, tourism and waste management. Lower species richness of birds in this area is attributed due to habitat disturbance through multi utilization status of Khutaghat. As reported the highest number of birds reported mid-month of October to Post January and there was reduction in population size and movement during minth of April to June.

CONCLUSION
We conclude that species spatial distributions are directly effected by global warming and subsequently climate change. The avifaunal population was influenced by several factors. The study reveals the decrease in the abundance of birds. Linear regression relationship was established between avifaunal abundance and physic chemical characteristics of water. It was clear from the present investigation that birds prefer nutrient rich habitat, but avoid very much rich condition. Population of avifauna was correlated significantly with alteration of water.
ACKNOWLEDGEMENT
Our purpose to this research paper on “Biodiversity of migratory birds in Khutaghat, Ratanpur” is to create general awareness about birds found in Bilaspur district of Chhattisgarh State. Also the Khutaghat dam has suitable habitat for seasonal migrants and due to richness of avifauna species.

REFERENCES
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