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Common threats on House Sparrow in Purba Medinipur District , West Bengal, India

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Abstract

The house sparrow, Passer domesticus (Linnaeus, 1758) is closely associated with human habitations and also cultivationpractice from historic times. The house sparrow is a bird that is widely distributed almost in every region except the places with adverse climatic conditions. Distribution of House sparrow is not uniform in the country, and in the present time disappearing of sparrows is also reported from various parts of the world including India. But reliable information on sparrow populations is not available in India including West Bengal. Less work has been carried out actually for counting and keeping a record of the sparrow population.

There are various factors responsible for the decline of house sparrows. These include lack of food, pollution, predation by domestic cats or sparrow hawks, competition for food from other urban species, loss of nesting sites, increased use of inorganic pesticides ,climatic change for pollution, electromagnetic radiations, disease transmission etc. This paper is concerned with the causes of decline of House Sparrow in Purba Medinipur, West Bengal.

This first assessment of the House Sparrow distribution in Purba Medinipur was made after a –six months -long study(during the month of February- July 2021 with a sample of 340 households).

Purba Medinipur has been classified into four areas based on the degree and kind of urbanisation and human habitation (Planned City, Highly dense city, Medium dense city and Low dense city regions) as well as village areas.

Preliminary findings from this study suggests that urbanisation has a detrimental impact on the population of House Sparrows in Purba Medinipur, with the most significant impact in the planned urban area. It indicates environmental stability when there are adequate numbers of House Sparrow in a given area. That's why it's important to note the decline of house sparrows in Purba Medinipur, especially in the planned city zone has been observed.

Keywords: House Sparrow, Fixed–Radius Point Count Method,Urbanization, Sub-urban areas , International Sparrow Day.

Introduction:

House sparrows (*Passer domesticus*) are one of the most widespread passerines species in the world facing serious decline in their population (Crick et al. 2002; Prowse 2002; Olsen et al.2003; Robinson et al. 2005; Vincent 2005; Klok et al. 2006; Balmori et al. 2007; Bohner et al. 2007; Summers and Smith2007;Murgui and Macias 2010; Kekkonen et al. 2011).Similarly,there were reports of population decline in India (Daniels 2008; Rajashekar and Venkatesha 2008; Bhattacharya et al. 2010;Dandapat et al. 2010;

Ghosh et al. 2010; Khera et al. 2010; Bhattacharya et al. 2011; Dhanya 2011; Sethi and Vashisth 2013; Kamath et al. 2014).

It is a small bird, typically Size is14-16 cm - Wingspan 19 - 25 cm long and weights around 25-32 grams. The male has a small but thick black colored beak with black colored throat, with black colour on their upper breast and between the bill and eyes, while the female has a pale colored beak and it is normally grey in colour (without black on head or throat).

Scientific Name : Passer domesticus (Linnaeus, 1758)

Common Name : House Sparrow

IUCN threatened Category : Least Concern [LC]

WPA (India) Schedule: Schedule-IV

Bengali Name : Chorui pakhi (□□□□ □□□□), Chorai (□□□□ □□□□)

It is the most widely distributed land birds in the world (Summers & Smith, 1988). It is associated with human habitations as agricultural land, villages and urban areas.

Humans have built a strong relationship with House Sparrows throughout time. They never leave their colony region, less than a mile away. For centuries, residents in South India believed that if the House Sparrow made a nest in their homes, it would bring good luck. Because of the close relationship between man and the sparrow, it was given the scientific name *Passer domesticus*, which means "domestic sparrow."

Food : Seeds and kitchen scraps are the primary sources of food for House Sparrows. Throughout India, the House Sparrow was once a frequent sight, whether in a busy city or a quiet village. House Sparrow is an omnivore as it feeds on grains, paddy and as well on insects, ants, larvae etc. They are primarily seedeaters but also eat insects specially during the breeding season (Lowther and Cink 1992).

Nesting sites : The sparrows have been associated around the human habitat. The bird lived in building crevices, holes, ventilators of old pattern building, and even in AC compressor etc.

Common threats on House Sparrow :

Over the last decade, the birds have almost vanished in many big cities and growing urban areas including Purba Medinipur. However, one can notice that their population is still intact in semi-urban and rural areas. This clearly indicates that urbanization has a direct bearing on the decline in the Sparrow population. Urbanization and construction of building with increase human population in two Medinipur districts can be considered as one of the major causes for the decline in the sparrow population. Urbanization has complex direct and indirect effects on native flora and fauna .The number of house sparrows in urban semi-urban areas of Purba Medinipur has declined dramatically. The reasons for decline of population are as under-

Urbanization : Urbanization is related with detrimental rise in infrastructure. New concrete structures are replacing the traditional tiled roofs , excessive increase in the automobiles and natural habitat loss in Haldia , Contai , Tamluk , Digha even village areas as Nandigram, Chandipur , Bajkul etc. Such actions are almost certainly causing difficulty for sparrows in obtaining necessary nest-building materials (Dutta et al. 2008). Globalization and modernization have changed the living style of the people in the town area and has also changed in grain storage practices like plastic bagging of grains to minimize spilling out and spoilage.

Decreaseness of roosting trees and plants : Cutting down of roosting trees and plants in town areas also directly related with decline in population of sparrows, as they are known to roost in small and medium sized trees (Dhanya andAzeez, 2010).

Electromagnetic radiations : Electromagnetic radiations from the mobile towers were the most suggested reason , even though no proper scientific validation is available in this context (Balmori and Hallberg 2007; Kamath et al. 2014). hanya and Azeez, 2010). Though electromagnetic radiation is proved to affect circulatory system , reproduction and central nervous systems and may cause microwave syndrome which leads to decline of different animals (Mohan Kumar, 2010).

Pollution: Other important reasons were climatic changes and its associated temperature rise with air pollution –which is maximum in Haldia industrial region and upto Sutahata ,Chaityanyapur .

Lack of Water sites: The urban areas of different parts of Purba Medinipur face acute shortage of water during summer season. During this period, water is not easily available to house sparrows. The town areas lack ponds, Wetlands / *nayanjalis* , *jhils* etc..

Some of the most recent studies were done by Droscher 1992; Crick et al. 2002; Hole et al. 2002; Raven et al. 2003; Anonymous 2004. Several studies in India (Rajashekhar and Venkatesh 2008; Khera et al. 2010; Ethiraj 2010a, b; Anto and Ponnarasi 2014) show a considerable reduction in the number of sparrows in cities like Delhi, Mumbai, Bangalore, and Chennai. The International Union for the Conservation of Nature and Natural Resources (IUCN) has placed them on the Red List due to their recent decrease (Ethiraj 2010a, b).

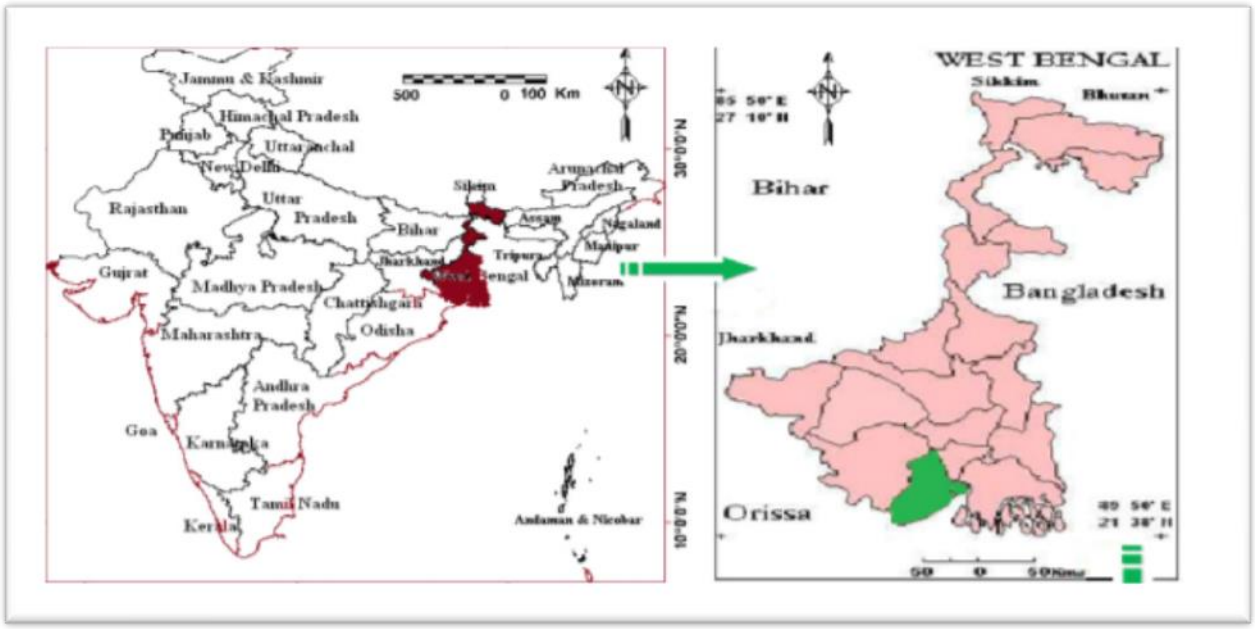
In 2010, Britain's Royal Society of Protection of Birds has enlisted the house sparrows in the 'Red List' on the basis of the findings of researchers in different parts of the world including those from India.

On March 20, 2010, different worldwide and national bird-loving organisations joined forces to celebrate International Sparrow Day. Each year, March 20 is designated as World House Sparrow Day (WHSD) to raise awareness of the significance of sparrows.

Study area :

Lower Gangetic Plain and Eastern Coastal Plains: Purba Medinipur is located in West Bengal's southernmost district. Purba Medinipur is about 4151.64 km2. The Bay of Bengal borders the district in the south and Odisha in the southwest. To the east are the Hooghly River and the South 24 Parganas, to the north are Howrah and Paschim Medinipur, and to the northwest is the city of Howrah. The district has a maximum elevation of 10 metres above sea level.

In West Bengal, Purba Medinipur's coastline accounts for 27% of the state's coastal area, at 60 kilometres (Chakraborty, 2010). This location has a tropical climate. This area experiences temperatures between 30 and 38 degrees Celsius during the summer months (March-June) and between 15 and 25 degrees Celsius during the winter months (November-February). It rains an average of 1700 millimetres each year.



Study area

Materials and Methods :

Purba Medinipur's human population density varies greatly. It was decided to employ the Fixed–Radius Point Count Method (Khera et al., 2010) for a survey that would last for 15 minutes and have a 30 m radius. Among the 13 areas selected for study, 27 locations were chosen for further investigation. Birds' nests were purposefully avoided as an observation site. In the morning (between 7:30 and 8:30 a.m.), and in the late afternoon (between 4.30 and 5.30 p.m.)observations were made with the help of binocular and camera . Surveys were conducted chiefly on clear, bright days with average temperatures. The questionnaire survey was conducted in the local language (Bengalei).

Status of sparrows in Purba Medinipur District :

A total of 27 sites were surveyed in Purba Medinipur. Compared to urban towns, more number of sparrows where found in smaller towns and in rural areas. Among the 130 individuals interviewed 90% had opinioned to have seen sparrows earlier (past), but only 52% of people have opinioned to see them at present, which indicated 30% of responders had seen sparrows earlier but not presently. Hence, this data suggests that there was a decline in the population of sparrows in the district.

(a) House sparrow searching its food

(b) house sparrow nest in olden styled building, nest in crevices and holes

Discussion :

Researchers Scott (1993) and Khera (2010) have shown that urbanisation increases bird population while decreasing bird diversity.

a) A natural system should be established by the implementation of law by government so as to ensure that the food chain is not disturbed for the House Sparrow. This would make available the insect larvae for younger sparrows.

c) Government should come out with strict policies and must ensure that proper waste management systems are being practiced by industries. A proper waste management would ensure that the pollution can be checked to an extent.

d) Every house should be made to plant trees which would help in developing an ecosystem for the survival of the species.

e) Create awareness amongst people and ask to make bird nests and hang them at appropriate places.

It is also possible that the House Sparrow's narrow range and low population is due to competition with other common birds, such as the House Crow, Common Myna, and Rock Pigeon. It is impossible for the sparrow to compete with these large birds because of their sheer size. With its wide range of diet, the house crow is well-suited to urban environments.

Description	2011	2001
Population	50.96 Lakhs	44.17 Lakhs
Actual Population	5,095,875	4,417,377
Male	2,629,834	2,268,322
Female	2,466,041	2,149,055
Population Growth	15.36%	14.87%

Population in Purba Medinipur *Source: Census of India 2011

Conclusion:

The sparrow population and distribution are directly affected by urbanisation. They are most often seen in densely populated areas in Purba Medinipur, where food sources are abundant and nesting places are readily accessible. Sparrows are nearly nonexistent in low-density urban and rural settings. The quantity and occupancy of house sparrows varied seasonally depending on the type of urbanisation. Natural habitats in suburban areas need to be protected, while sparrows in medium- and low-density urban areas need to be provided with adequate foraging and nesting grounds. We can help rescue the sparrow from extinction in our area by raising public awareness and enlisting the general population's support.

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