

Population Status and Distribution of House Sparrow (*Passer domesticus*) in Rural and Urban Habitats of Sri Ganganagar District, Rajasthan

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Abstract

House House Sparrow (*Passer domesticus*) is a common bird of the family Passeridae. It is a species that is widespread throughout much of the world. The species lives close to human settlements. It is commonly found in both rural and urban habitats. Over the past few decades, its population has decreased. The principal causes are rapid urbanization, modern buildings, loss of nesting sites, and changes in agricultural practices.

The present study was conducted during the period 1st January 2024 to 31st December 2024 in Sri Ganganagar District, Rajasthan. Ten study sites were chosen. These included five rural and five urban sites. The population and distribution of House Sparrow were studied through field surveys and direct observations.

A total of 180 House Sparrows were recorded during the study. of these, 108 birds (60%) were observed in rural habitats. The remaining 72 birds (40%) were observed in urban habitats. A total of 30 active nests were also recorded. Of these, 18 nests (60%) were found in rural areas, while 12 nests (40%) were found in urban areas.

The study revealed that there were more sparrows in rural habitats than in urban habitats. Traditional houses, agricultural fields, livestock sheds, green vegetation, food resources, and water sources provided suitable conditions for the species. Urban habitats had fewer nesting sites and less green cover. The distribution of House Sparrow was influenced by these factors.

The findings of this study provide useful information for the conservation of *Passer domesticus*. The study also supports habitat management and biodiversity conservation in Sri Ganganagar District.

Keywords: House Sparrow, *Passer domesticus*, Passeridae, Population Status, Distribution, Rural Habitat, Urban Habitat, Sri Ganganagar District, Conservation.

1. Introduction

The House House Sparrow (*Passer domesticus*) is a very widespread bird of the family Passeridae. It is closely associated with human settlements. The species is found in many countries of the world. It can thrive in both rural and urban habitats. It has coexisted with humans for many years. It is a familiar bird because of its pleasant chirping, social behaviour, and adaptability.

The House Sparrow is not only a common bird. It is also an important bio-indicator of environmental quality. It is considered an indicator of a healthy ecosystem. It also reflects the availability of food, water, green vegetation, and suitable nesting sites. A decline in its population may indicate habitat loss and environmental degradation.

During the last few decades, the House Sparrow population has declined in many parts of the world, including India. Rapid urbanization is one of the major causes. Modern buildings provide fewer nesting sites. The use of chemical pesticides has also increased. Green spaces have decreased in many towns and cities. Food and water resources have also become limited. These factors have affected the survival of the species. Several studies have reported that sparrow populations are generally lower in urban areas than in rural habitats.

Sri Ganganagar District is an important agricultural region of Rajasthan. The district has developed irrigation through the Indira Gandhi Canal Project. Agriculture and livestock farming are the main occupations of the local people. Traditional houses, livestock sheds, crop fields, and roadside trees provide suitable habitats for the House Sparrow. However, rapid urban development, concrete buildings, and the loss of natural nesting sites are changing its habitat. Scientific information on the population and distribution of *Passer domesticus* in Sri Ganganagar District is still limited.

Therefore, the present study was conducted to assess the population status and distribution of the House Sparrow in rural and urban habitats of Sri Ganganagar District. The study also compared sparrow abundance, active nests, and habitat characteristics between the two habitat types. The findings will provide useful information for the conservation of *Passer domesticus*. The results may also help in habitat management and biodiversity conservation in the study area

2. Materials and Methods

2.1 Study Area

The present study was carried out in selected rural and urban areas of Sri Ganganagar District, Rajasthan, India. The district lies in the north-western part of Rajasthan. It is an important agricultural region. Improved irrigation in this area is due to the Indira Gandhi Canal Project. Wheat, cotton, mustard, gram, and other crops are widely cultivated. House Sparrow (*Passer domesticus*) is found in suitable habitats such as agricultural fields, livestock sheds, traditional houses, public parks, and human settlements. A total of 10 study sites were selected for the survey. These included five rural and five urban locations.

2.2 Study Period

The study was performed from January 2024 to December 2024. Field surveys were carried out regularly during different seasons. This helped to record the population and distribution of the House Sparrow throughout the year.

2.3 Survey Method

Direct observation and the line transect method were used to study the House Sparrow population. Each study site was surveyed during the morning (7:00 AM to 10:00 AM) and the evening (5:00 PM to 7:00 PM). Sparrows are more active during these hours. A fixed transect was followed at each site. The number of House Sparrows observed was recorded. Active nests were also recorded during the survey.

2.4 Data Collection

During the field survey, the following information was recorded:

- Total number of House Sparrows.
- Population in rural habitats.
- Population in urban habitats.

- Number of active nests.
- Type of nesting sites.
- Availability of food and water.
- Vegetation and habitat conditions.

All observations were recorded on a pre-designed field data sheet. Binoculars, a digital camera, and a GPS device were used whenever required

2.5 Statistical Analysis

The collected data were analysed using mean, percentage, and comparative analysis. The population and active nests were compared between rural and urban habitats. The results were presented in the form of tables and figures.

3. Results

3.1 Population Status of House Sparrow

Regular field surveys were conducted at five rural and five urban study sites in Sri Ganganagar District. Overall, 180 House Sparrows (*Passer domesticus*) were recorded during the study period. Of these, 108 birds (60%) were observed in rural habitats. The remaining 72 birds (40%) were recorded in urban habitats. The results showed that the House Sparrow population was higher in rural areas than in urban areas.

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Table 1. Population of House Sparrow in Rural and Urban Habitats

Study Area	Number of House Sparrows	Percentage (%)
Rural	108	60.0
Urban	72	40.0
Total	180	100

3.2 Distribution of Active Nests

A total of 30 active nests were recorded during the survey. Of these, 18 nests (60%) were found in rural habitats. The remaining 12 nests (40%) were recorded in urban habitats. The results indicated that rural habitats provided better nesting conditions for the House Sparrow.

Table 2. Distribution of Active Nests

Study Area	Active Nests	Percentage (%)
Rural	18	60.0
Urban	12	40.0
Total	30	100

3.3 Habitat Distribution

Field observations showed clear differences between rural and urban habitats. House Sparrows were commonly found around traditional houses, livestock sheds, agricultural fields, and trees in rural areas. In urban areas, they were mainly recorded

near residential colonies, public parks, and small green spaces. Modern buildings provided fewer nesting sites. This may have reduced the sparrow population in urban habitats.

3.4 Major Findings

- A total of 180 House Sparrows (*Passer domesticus*) were recorded during the study.
- 108 birds (60%) were observed in rural habitats.
- 72 birds (40%) were recorded in urban habitats.
- A total of 30 active nests were found during the survey.
- 18 nests (60%) were recorded in rural habitats.
- 12 nests (40%) were recorded in urban habitats.
- Rural habitats supported a higher sparrow population.
- Better food, water, green vegetation, and nesting sites were available in rural areas.

4. Discussion

The present study showed that the population of House Sparrow (*Passer domesticus*) was higher in rural habitats than in urban habitats of Sri Ganganagar District. A total of 180 House Sparrows were recorded during the study. Of these, 60% were found in rural areas, while 40% were recorded in urban areas. A total of 30 active nests were also observed. Out of these, 18 nests were found in rural habitats and 12 nests in urban habitats. These findings indicate that rural habitats provide better conditions for the House Sparrow.

Rural areas provided suitable nesting sites and food resources. Traditional houses, livestock sheds, agricultural fields, and trees supported the House Sparrow population. Food and water were also more easily available. These conditions helped the birds to survive and reproduce. In contrast, urban habitats had modern buildings and fewer natural nesting sites. Green vegetation was also limited. These factors may have reduced the sparrow population in urban areas.

The present findings are similar to earlier studies. Previous researchers reported that House Sparrows are more abundant in rural and suburban habitats than in highly urbanized areas. They also found a higher number of active nests in these habitats. A study conducted in Dehradun reported similar results. The highest sparrow population and nest density were recorded in suburban areas, while high-density urban areas showed lower values.

Field observations also showed that sparrows were more common in places with trees, shrubs, crop fields, and livestock activities. These habitats provided food, shelter, and nesting opportunities. On the other hand, areas with heavy traffic, concrete buildings, and limited green cover supported fewer sparrows. This suggests that habitat quality, food availability, and nesting sites play an important role in maintaining the population of *Passer domesticus*.

The results also indicate that simple conservation measures can help increase the sparrow population. Artificial nest boxes can be installed in urban areas. Plantation of native trees should be encouraged. Food and water should be made available, especially during summer. Public awareness programmes can also support the conservation of the House Sparrow. These measures may improve suitable habitats and help protect this species in the future.

5. Conclusion and Recommendations

5.1 Conclusion

The present study showed clear differences in the population and distribution of House Sparrow (*Passer domesticus*) between rural and urban habitats of Sri

Ganganagar District. A total of 180 House Sparrows were recorded during the survey. The population was higher in rural areas than in urban areas. The number of active nests was also higher in rural habitats. This indicates that rural habitats provide more suitable conditions for the species.

The study also showed that the House Sparrow population is supported by traditional houses, agricultural fields, livestock sheds, green vegetation, and the availability of food and water. These habitat features help the birds to survive and nest successfully. In contrast, urban areas have modern buildings, fewer nesting sites, limited green cover, and greater human disturbance. These conditions may reduce the population of *Passer domesticus*.

The findings suggest that habitat quality is an important factor for the survival of the House Sparrow. Conservation of natural and artificial nesting sites is essential. Regular food and water sources are also important. Public awareness can further support the conservation of this species. The results of the present study provide useful baseline information for future research and conservation programmes in Sri Ganganagar District.

5.2 Recommendations

- Artificial nest boxes should be installed in urban areas to provide safe nesting sites for House Sparrows.
- Native trees and shrubs should be planted in residential areas, parks, and other public places.
- The excessive use of chemical pesticides and herbicides should be reduced. These chemicals decrease the availability of insects, which are an important food source for sparrows.
- Water bowls and grain feeders should be placed in homes, schools, and public buildings, especially during summer.
- Public awareness programmes should be organised with the support of local communities, schools, and voluntary organisations.
- Long-term monitoring should be carried out in different habitats of Sri Ganganagar District. This will help in understanding future changes in the population and distribution of *Passer domesticus*.

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