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## To monitor the population of house sparrow (*Passer domesticus*) in villages of district Ludhiana, Punjab

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**Abstract**

The present study was carried out on the population of House Sparrow using line transect method in villages Kaind and Alamgir falling in district Ludhiana. Each village was divided into two transect; outer periphery of said villages was taken as transect I and III. Interior of these village was taken as transect II and IV. House Sparrow was found most abundant in the month of December in transects I, II, III and IV; it was followed in decreasing order of abundance in January, June and February in transect I; followed by January, April and November in transect II, downward monthly population trend was November, January, July and February in transect III and November, January, October and February in transect IV. It was recorded least abundant species in the months of March and September in Transect I and II. In transects III and IV, it was found least abundant in the months of August and July respectively. Flocks of House Sparrow preferred residential houses for foraging in winter months of all transects, it might be because of non-availability of crops at ripened stage in the surrounding fields.

**Keywords:** Population abundance, distribution, house sparrow

**1. Introduction**

House Sparrow (*Passer domesticus*) is one of the familiar species that has followed man everywhere and is inseparable from human habitations [1]. The non-migratory Sparrows are widely distributed in the Indian subcontinent and found worldwide [9]. They are rarely found in undisturbed areas [8]. It also feeds on larva of mosquitoes which breeds in water stagnated in the inaccessible area of the house. House Sparrows go in search of larva and feeds on them. This mechanism is a natural pest control process in which human being also get favored without any expenses [7]. House Sparrow is listed in Red Data Book of International Union for Conservation of Nature (IUCN) which is an alarm bell to us. Reasons for the Sparrow decline are numerous such as loss of habitat, cell phone towers, loss of tree canopy, lack of preferred food and modern lifestyle [2]. House Sparrow is a very important member of various urban and natural food chains and food webs. Modern buildings and landscaped gardens do not have cavities which are important for House Sparrows to make nests [3]. It is our responsibility to save this beautiful and harmless bird for the environment as our little effort may create great impacts in the life system of House Sparrows [2]. The aim of the present study was to evaluate the population of House Sparrow in selected villages of Ludhiana district.

**2. Materials and methods**

Population of House Sparrow was assessed in two villages Kaind and Alamgir of District Ludhiana. These villages are situated at 15 km from Ludhiana city (having latitude of 30° 54'3" N and longitude of 75° 51'26" E). Each village was divided into two transect; outer periphery of said villages was taken as transect I and III. Interior of these village was taken as transect II and IV. Line transect method selecting one km length and 50 m in width was used for data collection. In transects I and III, habitat components included residential area, Gurudwara Sahib, trees, cattle dung dumps and crop fields. Transect II and IV were selected in village interiors and they included residential area, trees and cattle dung dumps etc. Observations were taken during mornings and evenings. Counting of only those birds was made which were present within transect while the birds showing to and fro movements and occurring beyond the fixed distance were not taken into consideration. One way ANOVA used to compare the month wise population of House Sparrow in all transects.

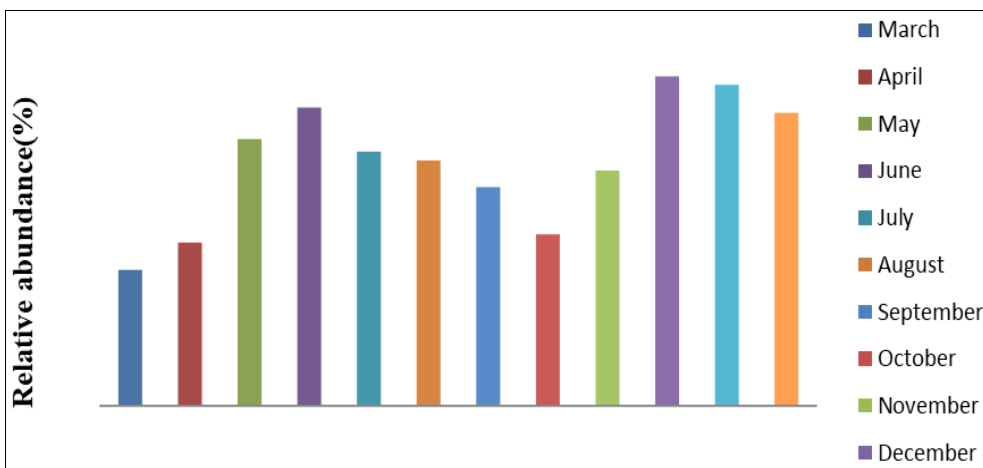
### 3. Results and discussion

In the transect I, House Sparrow was found most abundant in the month of December (7.53%) followed by January (7.35%), June (6.83%) and February (6.70%). It was recorded least abundant species in the month of March (3.12%). (Table 1) In the transect II, it was found to be most abundant in the month of December (10.90%) followed by January (10.84%), April (10.47%) and November (10.04%). It was observed least abundant in month of September (6.56%). In the transect III, it was found most abundant in the month of December (10.58%) followed by November (9.21%), January (9.08%), July (5.19%) and February (7.03%) shown in Table 1. It was observed least abundant in month of August (3.07%). In the transect IV, it was found most abundant in the month of December (10.32%) followed by November (10.13%),

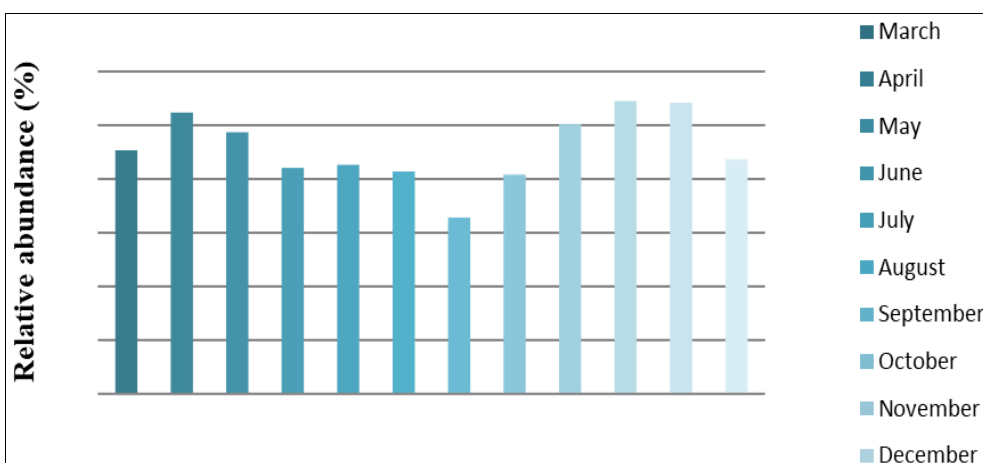
January (10.08%), October (9.44%) and February (9.35%). It was observed least abundant in month of July (5.91%). Seven to ten flocks of House Sparrow were observed foraging on grains provided by residents in winter months in all transects (Fig 1). In the present study, population number of House Sparrow was observed maximum in the rural residential premises because of food availability particularly in winter months when there was no crop at the ripening stage in fields (Plate 1 and Fig 2). There were observed a large number of House Sparrow pairs constructing nests in residential houses/cattle sheds and rearing their chicks in the months of June and July (Fig 3). There was recorded non- significant difference among population of House Sparrows in all transects (Fig 4).

**Table 1:** Month-wise relative abundance (%) of House Sparrow in different transects

Months	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Annual relative abundance (%)
Transect I	3.12	3.74	6.21	6.83	5.82	5.61	5.00	3.93	5.38	7.53	7.35	6.70	5.68
Transect II	9.08	10.47	9.75	8.42	8.54	8.28	6.56	8.17	10.04	10.90	10.84	8.73	9.16
Transect III	6.41	5.30	4.14	4.81	5.19	3.07	4.01	4.97	9.21	10.58	9.08	7.03	6.08
Transect IV	7.67	7.34	7.08	6.97	5.91	6.08	8.87	9.44	10.13	10.32	10.08	9.35	8.32



**Fig 1:** Monthly relative abundance (%) of House Sparrow in at transect I



**Fig 2:** Monthly relative abundance (%) of House Sparrow at transect II

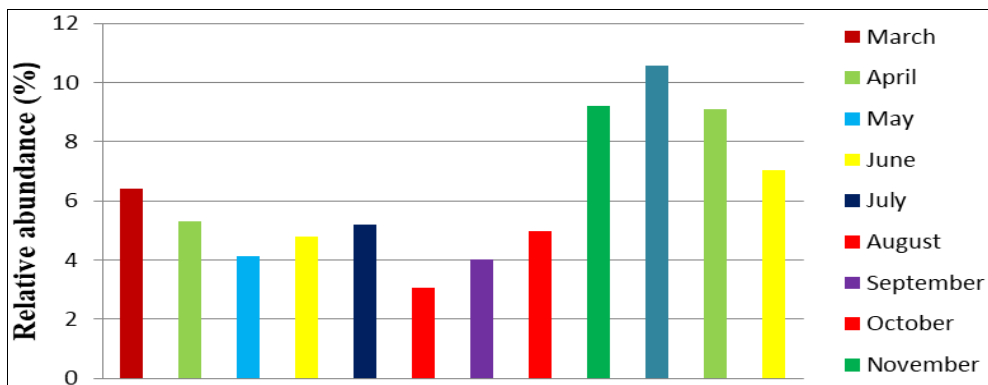


Fig 3: Monthly relative abundance (%) of House Sparrow at transect III

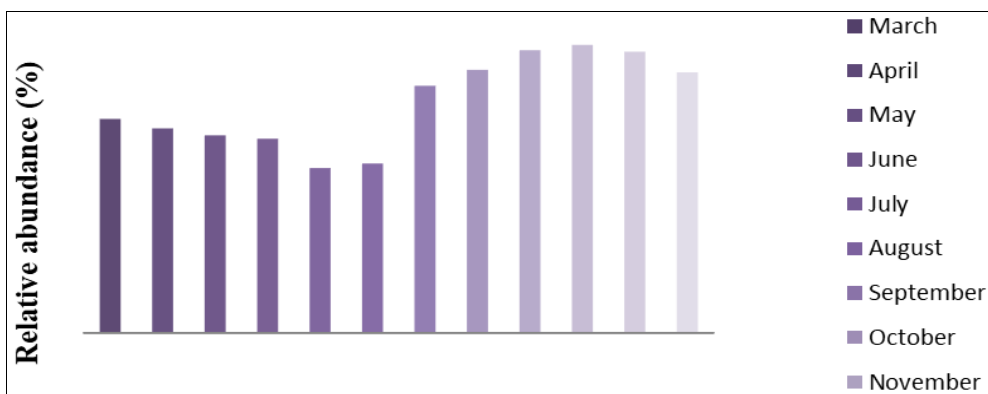


Fig 4: Monthly relative abundance (%) of House Sparrow at transect IV



Fig a



Fig b



Fig c



Fig d

Plate 1: Figure a, b and c showing House Sparrow feeding on grains. Figure d showing water bathing activity of House Sparrow

Sundaramahalingam *et al.* [9] had reported that the increase in the population of House Sparrows in winter season (December, January and February) in many study sites might be due to the heavy rainfall during the North east monsoon season which resulted in the availability of insect larva for its nestlings. In present investigations, it was found that the House Sparrows began to lay eggs after the commencement of rain in the study area. It was further noted that House Sparrows preferred old buildings and thatched roof houses to build their nests. Chopra *et al* [5] had mentioned that occurrence of House Sparrow near human habitations such as suburban areas, gardens, parks, agricultural areas, stables, feedlots, villages and godowns has been well documented over the globe. According to Monika [6] maximum numbers of House Sparrows had been recorded in rural areas as compared to agricultural areas and further observed that House Sparrow did not inhabit in the dense forest area. Similarly Bohler and Claus [4] also observed maximum population density of House Sparrow in rural areas (50 individual/10 hectares) as compared to parks and garden (48 individuals/10 hectares) and industries area (45 individuals/10 hectares).

#### 4. Conclusion

The abundance of House Sparrows in houses having cattle sheds in villages have suggested that these human habitats provide co-existence to small passerine birds by providing food, shelter and nesting sites. Steps should be taken for the conservation of common birds by involving village community and knowledge dissemination programmes.

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