

Clutch Size and Egg Morphometric Parameters of House Sparrow, *Passer domesticus* (Linnaeus, 1758) in District Kurukshetra, Haryana (India)

¹Girish Chopra, ²Ajay Kumar and ³Deepak Rai

^{1,2,3}Department of Zoology, Kurukshetra University, Kurukshetra -136119, Haryana, India

²Email: ajayindorakuk@yahoo.com

Abstract: Clutch size and egg morphometric parameters of house sparrow, *Passer domesticus* (Linnaeus, 1758) were studied during breeding season from March, 2010 to July, 2010 in district Kurukshetra of Haryana, India. A total numbers of 59 viable nests of house sparrow were observed in different habitats and parameters such as clutch size, eggs length, eggs width and egg weight of all the studied nests were recorded. The clutch size varied from 1 to 6 with a mean of 3.62 ± 0.55 ; clutch size of 4 was the most common in the 59 studied nests. Observed eggs were white or buff colored with black spots having thick closely pitted shell. Average egg length and width were 2.24 ± 0.97 cm and 2.45 ± 0.10 cm, respectively. The weight of eggs varied from minimum 2.02 g to maximum 3.02 g with an average 2.79 ± 0.20 g.

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1. Introduction:

Birds have always fascinated man for their coloration and behavior. They have important functional role in the ecosystem as pollinators, scavengers and so have been rightly designated as bio-indicators. An unnatural change in the population of a bird species will provide an early warning bell towards an ecological imbalance in the given environment. Thus, maintaining the populations of bird species provides an economically viable option for ecosystem management. Among the various species of birds, the house sparrow *Passer domesticus* L. is one of the familiar species that has followed man everywhere and is inseparable from human habitations (Turner, 2003). The non-migratory sparrows are widely distributed in the Indian subcontinent and occur worldwide. House sparrow, commonly called as Chidi or Gouriya, is among the most common birds of India and has been earlier reported to be prevalent in good numbers in Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Rajasthan, Gujarat, Maharashtra, Orissa and Kerala (Claton *et al.*, 1992). However, this bird species, once seen widely everywhere, has now shown marked decline in its population in many parts of the world including India (Summers-Smith, 2005) and is assessed as least concern on the IUCN Red List (Bird Life International, 2008). For conservation of any species, detailed information on its breeding biology is must. In Haryana, the house sparrow, is highly prevalent in South-West region as compared to North-East region of the state (Sharma, 2009) and scanty information is available on its ecology, reproductive behaviour and its conservation in the

state of Haryana, in particular. Therefore, present study was planned to collect information on clutch size and egg morphometric parameters of house sparrow in selected habitats in district Kurukshetra, Haryana (India).

2. Materials and Methods:

Study area:

The present study was carried out in selected villages of four tehsils of district Kurukshetra, Haryana (India). District Kurukshetra is situated at $29^{\circ}52' N$ to $30^{\circ}12' N$ latitude and $76^{\circ}26' E$ to $77^{\circ}04' E$ longitude and is known as Rice bowl of India. It has four tehsils, namely, Pehowa, Thanesar, Shahabad and Ladwa with 419 villages and a total area 1,68,000 ha under cultivation. Climate is sub-tropical monsoon with rainy season (July to September), a cool dry winter season (October-February) and the hot dry summer season (March-June). Temperature is as high as $45^{\circ} C$ in summer and as low as $3^{\circ} C$ in winter. The normal annual rainfall of the district is 582 mm. It is one of the agriculturally prosperous districts of the Haryana state with wheat and rice being the main crops. Among the commercial crops sugarcane is an important crop of this district. During present study, selected habitats were surveyed during breeding season from March, 2010 to July, 2010 to locate viable nests of house sparrow (Fig. 1) and information about the various eggs morphometric parameters of house sparrow, *Passer domesticus* (Linnaeus, 1758) was collected. Clutch size, colour of eggs and egg weight per clutch was also recorded following Narang and Lamba (1980), Sengupta

(1982) and Kandwal (1990). Eggs were weighed at the site with the help of Electronic Weighing Balance and the length and width of eggs were measured with the help of Vernier Calliper.

3. Results and discussion

Mating in house sparrow occurs throughout the breeding cycle, *i.e.*, from March to early August (Franklin, 2007). However, in the north India, this species breeds during March-June, in central India continuing till September-October and in southern India throughout the year (Jansen, 1983). In the present study breeding season of house sparrow, *Passer domesticus* was found to extend from March to July. The breeding during this period may be related to the availability of insects (a protein rich diet) for the growing nestlings. Out of 59 viable nests locate 14 nests were spotted in tehsil Pehowa, 16 nests in tehsil Thanesar, 15 nests in tehsil Shahabad and 14 nests in tehsil Ladwa. The nests were constructed in the vacant large spaces, in the walls of rural residential premises, on electric wires and occasionally in agricultural fields using dry leaves, straw, feathers and small twigs (Plates 1 and 2). Observed eggs of house sparrow were white or buff coloured with black spots having thick closely pitted shell (Plate 1). Female laid one to six eggs, variable in size as well as marking. They were generally white colour or buff colour and profusely dusted with black spots. Jansen (1983) earlier observed that eggs were white, blush-white, greenish spotted in colour and subelliptical in shape. In the present study, clutch size of house sparrow revealed variations from minimum 2

to maximum 6 with mean 3.72 ± 0.71 in tehsil Pehowa, minimum 2 to maximum 6 with mean 3.63 ± 0.71 in tehsil Thanesar, minimum 3 to maximum 5 with mean 3.58 ± 0.42 in tehsil Shahabad and minimum 1 to maximum 4 with mean 3.58 ± 0.39 in tehsil Ladwa (Table 1, Fig. 1). Earlier also, usual clutch size of 4 or 5 eggs and occasional only one egg to as many as 11 eggs have also been recorded from different parts of the world (Summer-Smith, 1988; Crick and Siriwardena, 2002; Lowther *et al.*, 2006; Aslan and Yavuj, 2010). However, In Iraq and Israel, clutch size of house sparrow varied from 2 to 7 and from 3 to 7 eggs respectively, and most successful clutch size was 5 and 6 eggs per clutch respectively (Al-Dabbagh and Jiad, 1988; Singer and Yom-Tov, 1988). In contrast, Seel (1968) reported that clutches of 4 eggs were the most common and most successful in England. According to Erdoğan and Kiziroğlu (1995), and Sıkı (1992), clutch size of house sparrow ranged from 3-6 and 3-7 eggs respectively and the most common and most successful clutch size was 5 eggs per clutch. Several factors such as food supply during the breeding season, condition of the breeding female, time of laying in the season and variation in climatic conditions may contribute to variation in the clutch size of house sparrow (Aslan and Yavuj, 2010). The house sparrow was found to lay eggs with a average length and width of 2.24 ± 0.97 cm and 2.45 ± 0.10 cm respectively and the average weight of eggs was 2.79 ± 0.20 g. Egg measurements in the present study support earlier reports of Jansen (1983), Dunne (2006), Lowther *et al.* (2006), Aslan and Yavuj (2010) and Azam *et al.* (2010, 2011).

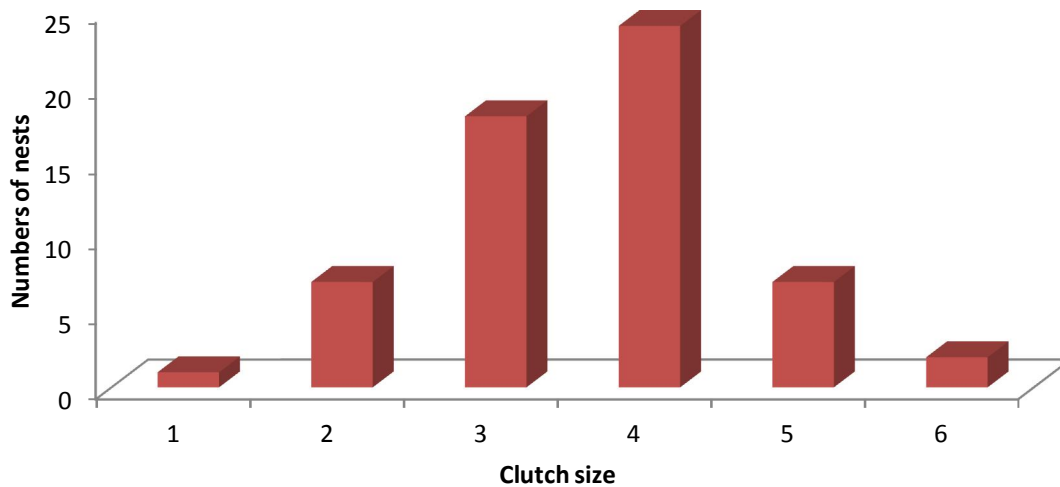


Fig. 1 Clutch size of house sparrow in selected habitats in district Kurukshetra, Haryana (India).



Plate 1. Revealing clutch size (minimum 1 egg to maximum 6 eggs, Fig. a-f). Nests of house sparrow, *Passer domesticus*.



Plate 2. Various locations of house sparrow nests, (a) on wooden support of the ceiling of room, (b) in agricultural field, (c) and (d) in the hole of clay plastered wall, (e) on the electric wire and (f) in the vacant space of the wall.

Table 1. Clutch size (numbers of eggs/nest) of house sparrow, *Passer domesticus*.

Tehsil	Numbers of Located nests	Total numbers of eggs in nests	Range	Mean clutch size± S.E.	Egg length (cm) (Mean±S.E.)	Egg width (cm) (Mean±S.E.)	Mean weight (g) (Mean±S.E.)
Pehowa	14	52	2-6	3.72±0.71	2.11±0.25	2.38±0.05	2.75±0.05
Thanesar	16	58	2-6	3.63±0.71	2.31±0.05	2.41±0.05	2.69±0.05
Shahabad	15	54	3-5	3.58±0.42	2.31±0.05	2.46±0.60	2.88±0.43
Ladwa	14	48	1-4	3.58±0.39 (1-4)	2.26±0.05	2.55±0.40	2.87±0.28
Average± S.E.				3.62±0.55	2.24±0.97	2.45±0.10	2.79±0.20

²Correspondence author:

Ajay Kumar
Department of Zoology, Kurukshetra University,
Kurukshetra-136119, Haryana (India).
Phone no. +91-9467040797

²e-mail - ajayindorakuk@yahoo.com

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