

## SINGLE NEST UTILIZATION TO REAR THREE CONSECUTIVE BROODS BY A PAIR OF PARENTS OF HOUSE SPARROW, *Passer domesticus*

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### ABSTRACT

This study narrates the observations made in domestic bird, *Passer domesticus* which lives close to human habitation and prefers to select safer corner in the house where they can uninterruptly build their nest, lay eggs and rear the chicks. Besides their busy schedule in preparing the nest with the untiring efforts of both the parents, they have to keep in mind every preparation to ensure safe survival of the chicks till they are capable to fly independently. The most surprising thing which could be observed in this study was the utilization of the same nest thrice by the pair to rear three sets of progeny and in each set, four chicks were reared. This endeavor of a single pair of domestic bird, house sparrow, for about 3.5 months indicates unique social setup to boost the number increase of their offspring to ensure existence of the species.

**KEYWORDS :** Single Nest Utilization, Broods Rearing, *Passer domesticus*

Birds are fascinating creatures perfectly adapted to aerial mode of life. Certain bird species are exclusively wild whereas others prefer to reside close to human habitation. House sparrow is a small sized bird and prefers to live close to human dwellings. They live in small groups and spend nights in roofs of hut, small supports, or tree branches in orchards (Summers-Smith and Denis, 1988). They breed in seasons when the temperature is at higher range. At the onset of breeding season, there is enormous increase in the size of the reproductive structures which results owing to hormones regulating the sexual behavior. One conspicuous change which can be observed is in males which start calling by nesting sites. Variation in the timing of mating and egg-laying has been seen according to geographical position and between specific locations and years which is due to sufficient supply of insects needed for egg formation and feeding nestlings (Pinowski et al., 1994, Robinson, et al 2005). It has been observed that the reproductively mature male takes the initiative to select the nesting sites at the onset of breeding season. The sexually mature pairs get actively engaged in the preparation of nest building at the beginning of summer season and continue to breed for about four months selecting sites like holes and crevices in manmade structures, behind window panes small trees close to buildings etc (Summers-Smith, 1999; Lowther and Cink, 1992).

In the eastern part of Uttar Pradesh of India, the population of house sparrow is seen to be dwindling due to human interruption. Most often, their nests are removed by

the dwellers as they feel that these birds would be of great nuisance, if allowed to breed close to their window panes. In urban areas, the presence of this species depends on the availability of proper shelter and places for foraging. Particularly at the time of breeding, these birds make sure the availability of the food which can be used to feed newly hatched chicks. During this study, a close vigil on the nest building, mating, and rearing of the chicks in *Passer domesticus* was undertaken. During this observation it was also recorded that the same nest was used by the same parents to rear three sets of chicks.

### OBSERVATIONS

The House Sparrow (*Passer domesticus*) belongs to family Passeridae and it is one of the prevalent birds found in different parts of India. These birds are ever active and promptly hop from one place to other and are seen verbally interacting to their group members. The daily activity of a pair of bird from the day they decided to construct a nest to the rearing of their entire hatch produced in a breeding season was carefully monitored with the intension not to interfere in their normal activity. The venue selected by the pair was a space measuring 25cm x 12cm x 4cm with iron mesh support on one vertical side and a glass support on the other side. The pair was able to enter into the nest from one lower corner of the space. The observations could be recorded from the inside part of the bed room.

The two sexes are distinctly identified. Male possesses dark grey skull cap and darker lower neck

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whereas female is light in colour. For nest building, both sexes were actively involved. Collection of cotton fibers, dry grasses were predominant materials in nest building. Both individuals were found to be engaged bringing the materials one by one and depositing them between window panes, an area of nearly 4 cm. width sandwiched between a transparent window glass sheet and iron mesh. The nest was prepared in such a way that a central space was created in the nest where the eggs were laid and the same area was utilized for the chicks rearing. The courtship behavior observed showed that it is the female that approaches the male and the male then depicts restless move up and down and droops and shivers his wings, pushing up his head, raising and spreading his tail. In the initial approaches from male, female does not show much closeness and wants to repel him through some threatening postures. The mating commences only when the female gives a soft low pitched sound as a signal of consent and then pair mate quite frequently. A number of attempts of mating commenced around the area of nest but the pair also moved long away from the nest at several times.

The eggs laid were white in colour bearing dark brown scattered dots. Four eggs were laid in each batch and in total 12 chicks were grown in one season by a single pair of parents. The following observations were recorded during this study:

In the beginning of 2nd week of March the pair started coming to the spot quite frequently and spending some time in the space where the nest was to be built. The parents started depositing the nest materials from the wee hours of 9 March, 2013. First brood: 26 March to 19 April; Second brood: 28 April to 24 May; Third brood: 6 June to 29 June. The parents left the nest deserted finally on 30 June, 2013.

Female laid 4 eggs in a brood. Both sexes were involved in incubating the eggs for 10-12 days. Young ones were able to fly away 13 to 15 days after hatching. The egg shells were removed immediately when chicks were out of their shells. Very gentle sound could be heard in the nest on days of their hatching. Male bird mainly guarded the nest and could be seen always close to the nest site whereas female was extremely busy in collecting the food, tirelessly supplying the food to the chicks.

During the study it was observed that male individual produces sound spotting any intruder and alerts female and chicks. Any one from the family showing curiosity in watching the chicks was not welcome by the male and he relentlessly showed annoyance by producing sound. During this period of their rearing some monkeys arrived in the proximity of the nest and consequently the male house sparrow moved from one window cover to other sounding his full voice to repel them. To our surprise the chicks which fearlessly produced sound, maintained complete silence indicating that the chicks get totally aware with the alarm signal of the male parent. Female carrying food in her mouth also kept distance from the nest during the alarm signal. We could also notice in the nearby place where another pair was engaged in chick rearing, that monkeys do eat the bird eggs and the chicks. Such alarm signals make the monkey think that there is something in the nearby area and thus they increased their curiosity to scan the site. During this perusal the important points which could be recorded were: both sexes collect the food and feed the chicks. They take 2.5 to 8 minutes to bring the food in the nest. During the period of one day a female moves approximately 90 to 160 times to feed the chicks. Male does not move same number of times as the female. For the last four years, we have been observing the nestling behavior in this species as the pair builds the nest at the same spot using exactly the same materials. We felt disturbed and annoyed in the beginning as pieces of grass made our bed room dirty and further the grown up chicks produce voice throughout the day. For the last two years, we thought that the same nest is being used by separate pairs of birds but our careful observations to this pair in the beginning and recognizing them with their marks helped us to understand that the same pair rears the three broods during this more than three months of period. This time we kept watching their behavior. It was also observed that during the last brood, when the young chicks were about to leave the nest, several of the young birds probably belonging to the same family, produced sound as if they are calling them to come out. The eldest of the chick first left the nest, on next day, 2<sup>nd</sup> and 3<sup>rd</sup> chicks left the nest and the fourth one left it in the morning of the last day.

It is well considered that the birds while planning to build a nest do think about the availability of the food in the proximity of the nest to be fed to their chicks and also to the safety aspect. The nest prepared in this case lied to the area where a small shallow ditch contained water and sewage contents allowing growth of aquatic weeds and insects and the parents were often spotted there collecting the food.

## DISCUSSION

The existence and perpetuation of a species depends upon the reproductive ability of its reproductively mature members. In the present scenario when both wild and domestic species of animals find it difficult to thrive well due to human intervention, it is being observed that such species select very unusual spots for the nest building at the time of breeding. The house sparrow facing similar threats from humans do not hesitate to access to the closer or internal parts of the houses for buildings nest. Throwing their initial collection of weeds and threads for nest construction do not deter them to abstain from the site but go on depositing materials and this leads to the owner of the house to sometimes compromise with the happenings. This species i.e. *Passer domesticus* always prefers to dwell near the human habitation and thus they are found in villages, towns, industrial areas and farms (Lowther and Cink 1992). Their presence in an area depends on the availability of the food in the vicinity. During day time they hover in small groups but gather in the evening in larger groups. The present day urbanization and the landscape have a large impact on avian community (Anderson, 2006, Summers-Smith, 2000, Wieloch, 1975, Witt, 1996).

We can spot large group of birds congregating to those places where they find safer place to dwell and get food to survive. Institutions or those organizations where natural landscape is more in availability are the more preferred sites for these birds. Interesting point in their behavior can be that they do not show more intimacy to the people but if grains are provided to them to eat, then they show more boldness to approach the inner premises of the house. The area where this observation was done was not much inhabited by this species nearly 12 years back.

Presently, larger groups of the birds of this species thrive here and can be often spotted. This is possible only because the gentry dwelling here realize the serious consequences of their disappearance as this bird is beneficial in several ways. Although, it may be physiological set up of this species to breed thrice or even more in a breeding season but the decline in the number of individuals may trigger stimuli to its members to build up the population loss for the purpose of survival and propagation of the species. The spread of this species to urban areas and finding appropriate shelter to live leaves good impact on the better propagation of this species. The progeny coming from different colonies do intermingle in such a way that cross fertilization could be achieved among the members of different descent. Although no genetic analysis in this regard has been done to know that the existing group possess enough genetic heterogeneity but sudden booming in the population of this species give an indication that the intermixing among the members of different colonies do occur to maintain genetic heterozygosity.

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## REFERENCES

- Anderson T. R., 2006. Biology of the Ubiquitous House Sparrow: from Genes to Populations. Oxford: Oxford University Press.
- Lowther P. E. and Cink C. L., 1992. "House Sparrow (*Passer domesticus*).” The Birds of North America, No. 12 (A. Poole, P. Stettenheim, and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA and The American Ornithologists' Union, Washington, DC.

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- Pinowski J., Barkowska M., Kruszewicz A. H. and Kruszewicz, A.G. 1994. The causes of the mortality of eggs and nestlings of Passer spp. *Journal of Bioscience*, **19**: 441-451.
- Robinson R., Siriwardena G. and Crick H., 2005. Size and trends of the House Sparrow *Passer domesticus* population in Great Britain. *Ibis*, **147** : 552-562.
- Summers-Smith Denis., 1988. The Sparrows. illustrated by Robert Gillmor. Calton, Staffs, England: T. & A. D. Poyser.
- Summers-Smith D., 1999. Current status of the House Sparrow in Britain. *British Wildlife*, 381-386.
- Summers-Smith D., 2000. Decline of House Sparrows in Large Towns. *British Birds*, **93** : 256-257.
- Wieloch M., 1975. Food of Nestling House Sparrows, *Passer domesticus* and Tree sparrows, *Passer montanus* in Agroecosystems. *Polish Ecological Studies*, **1**: 227-242.
- Witt K., 1996. The decline of the House Sparrow. *British Birds*, **89**: 146.