

# Uncommon Nest Site Selection by House Sparrows (*Passer Domesticus*)

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Breeding locale plays a major role in the health of individual birds. The quality of the nest site varies in space and time at different scales due to different environmental factors affecting reproductive success (Kumar A., 2019). House Sparrows are a species that are generally regarded as monogamous although extra pair paternity can vary from population to population, (Summers - Smith, 1988). House sparrows are known to nest in all surroundings but often in the close environs of man, choosing, however, varied places for its nest.

House Sparrow constructs its nest wherever it find a small nesting place. The House Sparrow prefer to nest in a variety of man - made structures such as wall holes, crevices, wall roof, upper portion of the shutter of the shops, in pipe, electric holes of fan and light and box of electric light poles etc. Through nest construction, birds create a highly localized environment according to their own requirements. This supports the climatic conditions for eggs and chicks, in many species. Nest site selection is followed by nest construction. The correct site ensures that the nest itself is positioned in such an environment that possesses all the features contributing towards fledging success. Four factors which influence the nest site selection are climate, predators, availability of food to raise the chicks and availability of suitable nesting materials to build it (Hansell M, 2000).

However, the studies supporting that nest sites of House Sparrows are limited is somewhat incompatible with the long history of nest site flexibility in the species (Sheldon and Griffith 2017).

Several cases of unusual nesting were seen from 2016 to 2019 while studying the breeding behavior of House Sparrows in different parts of India. House sparrows were seen occupying the nest of house swift (*Apus nipalensis*) in a house in Kedgaon, Ahmednagar, Maharashtra (Fig.1 a - c) in March 2019. No nest usurpation was observed. The breeding pair occupied the mud nest only after the House swifts left it. However, nest usurpation by non - excavating, cavity nesters possibly reflects the significance of the nest site since there is no cost of construction to be covered. House sparrows (*Passer domesticus*), when attempted to usurp cliff swallows (*Hirundo pyrrhonota*) from their nests, went to the lengths of destroying eggs or killing chicks. House sparrows had established themselves in old Cliff Swallow nests when some of them were incubating eggs. Similar observations were reported by Buss (1942) and Samuel (1969). House Sparrows defended a broad zone around their nests often preventing Cliff Swallows from nesting nearby. The insufficiency of nest cavities was revealed in the reports of mortalities that resulted from attempted usurpations. (Samuel 1969).





**Figure 1 (a) (b) (c):** Male and female house sparrow occupying the mud nest of House Swift

The nest of House sparrows was observed in vegetation in Niwari district of Madhya Pradesh and Jhansi district of Uttar Pradesh. The nest recorded in Niwari was on Kaim tree (*Mitragyna parvifolia*) located in the campus of Chardwari temple (Fig.2 a & b). The nest was constructed

twice (March, 2016 and June 2017) on the same site selected by the breeding pair. Both times it was unsuccessful due to the weather conditions (Fig.3 a & b). The nest was not strong enough to stand in the rains and strong winds. The twigs scattered and the nest was destroyed.



**Figure 2 (a):** Male sparrow constructing nest. Fig.2b: Male sparrow sitting in the complete nest



**Figure 3 (a) & (b):** Male and female sparrow around the nest destroyed due to weather conditions.

The other nest was constructed in the climbers of Madhu malti (*Combretum indicum*), also known as the Rangoon creeper and Bougainvillea (*Bougainvillea*) in May 2018 and April 2019. The nests were roughly woven into branches and stems (Fig.4 a & b). The nest in May 2018, was unsuccessful

due to weather conditions, however, the nest constructed in April 2019 was successful. The nest prepared by the breeding pair was supported by jute rope by the house owners to prevent it from falling due to the strong winds and rain.



**Figure 4 (a) & (b):** Nest constructed in the climbers of *Combretum indicum* and *Bougainvillea*

The observation may reflect on the unavailability of suitable nesting sites for the House Sparrows in case of the nest occupancy in Kedgaon, Maharashtra but in other two cases i. e. Chardwari Temple, Niwari and Jhansi, it is the case of behavior of the breeding pair because a number of nesting sites (natural and artificial) were actually available for them. Artificial nest boxes were installed for the House sparrows. The safe installation of the artificial nest boxes attracted the birds towards them (Kumar *et al.*, 2019). Most of the nest boxes were adopted by the breeding pairs (Fig.5a & b). In

spite of the available sites, the sparrows constructed nest on vegetation. Tree - nesting was reported following high population densities of invasive House Sparrows after their introduction to the USA (Barrows 1889). In 92 study sites, total 309 active House Sparrow nests were reported. In total, 133 (43%) nests were found in vegetation; of these, 131 (98.4%) were in tree/hedge branches supported by fine, compactly entangled twigs, stemming off a main branch, and 2 (1.5%) were found in tree cavities.



**Figure 5 (a) & (b):** Adopted artificial nest boxes by the breeding pairs

Nesting in the branches of trees and bushes (rather than tree or building cavities) has been considered an uncommon behavior by House Sparrows (Summers - Smith 1963; Van der Elst 1981). In grey literature, very limited studies show 'House Sparrow nesting studies' with the aim of including both buildings and vegetation as probable nesting sites, and enumerating House Sparrow nest - sites randomly over different environments (Kulczycki and Mazur - Gierasinska 1968; Indykiewicz 1991; Salek *et al.* 2015). Other research papers reflect only descriptive generalizations of nesting locations, isolated examples of rare/unusual nesting sites, the frequencies of nests found in sought after locations, or the frequency of unoccupied, potential nest sites (e. g. Summers - Smith 1958; Heij 1985; Imboma 2014; Peach *et al.* 2015; Nath *et al.* 2016). Although, given that nesting in vegetation or a building is not dependent on building cover, it is uncertain whether the high frequency of rural nesting is due to the accessibility of suitable nest sites, or the superiority of the surrounding habitat for sparrows (e. g. feeding and predator avoidance opportunities) (Chamberlain *et al.* 2007). Sheldon and Griffith in 2017 found that House Sparrow

nests had a tendency to be higher in buildings compared to nests built in vegetation, and House Sparrows tended to nest in dense, bush - like vegetation. The high rate of nesting in vegetation in Tasmania suggests that, converse to numerous implications (Summers - Smith 2003; Shaw *et al.* 2008; Ghosh *et al.* 2010; Nath *et al.* 2016), House Sparrows may not be innately reliant on cavities in buildings for nesting sites. Through these observations, we cannot characterize nest - site selection of the House Sparrow in the region, but it reflects flexibility in nest site selection. These results also suggest that safety from predators and nesting sustainability by means of dense bushes, and building crevices were significant criteria for nest site selection in both vegetation and buildings for the House Sparrow.

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