



NESTING BEHAVIOUR OF HOUSE CROW IN AGRICULTURAL HABITATS OF LUDHIANA, PUNJAB

KEYWORDS

House Crow, breeding, nesting sites, agricultural habitat.

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ABSTRACT House Crow (*Corvus splendens*) is tree nester and the nests are normally placed on tree about 10-12 m average height off ground. The House Crow establish their nests in local environment on various types of trees mainly on *Eucalyptus oblique* (Safada), *Ziziphus* sp. (Beeri), *Saraca asoca* (Ashoka), *Populus deltoids* (Popular) *Azadirachta indica* (Neem), *Melia azedarach* (Dharek) and *Syzygium cumini* (Jamun) tree, but occasionally on electric power transmission lines tower and mobile towers etc. as artificial nesting site. The use of these artificial structures for nesting purpose to expand their breeding range into areas where there are no natural nesting sites. A total of 91 nests were observed during the breeding seasons of 2013 and 2014 in the present study. Observation with respect to quantitative analysis and dimensions of the nests were also taken. House Crows were loosely colonial, were intolerant of conspecifics nesting on the same tree.

INTRODUCTION

The House Crow (*Corvus splendens*) is native to an extensive area of India, nearby parts of Asia and the Middle East. It has a well-documented history as an invasive pest overseas, with extensive naturalized populations in Eastern Africa, Singapore and elsewhere. Their ability to eat the eggs and chicks of other birds is well documented and due to a broad feeding niche, not only cause a damage to crops but also inflict serious losses on household and stored grain items. They cause considerable damage to cereal crops and orchard fruits resulting in substantial economic losses (Ahmad et al 2012). Indian House Crows are strongly commensal, living in close association with people and relying on food scraps and other waste.

MATERIALS AND METHODS:

To study the nesting biology of House Crow, the area selected were open agricultural fields and human habitations at two locations.

Location I: Punjab Agricultural University, Ludhiana: The Punjab Agricultural University campus, Ludhiana was situated in outskirts of Ludhiana city towards the north-west along the Ferozpur Road (30°56'N, 75°52'E and 247 m mean sea level). The university covers area of 1510 acres on its main campus.

Location II: The Village Halwara (30°43'23 N and 75°38'15.55 E and 239 m mean sea level) of Ludhiana district.

These study areas were further divided into 8 transects. Each transect had a distinct diversity of trees, cropland, food availability etc. Dominant vegetation includes trees like *Eucalyptus* sps., *Saraca asoca* (Ashoka), *Azadirachta indica* (Neem), *Ficus religiosa* (Piple) and *Populus deltoids* (Popular). The line transect and point count methods were followed for the survey (Javed and Kaul, 2002). The observations were started in the beginning of breeding season. All accessible nests were marked and recorded for regular observation on the activities of House Crow leading to pair formation, nest building, egg laying and hatching of eggs. Nikon 10X50 binocular and Nikon Coolpix 500 digital camera were used during the surveys. Regular visits of two hours, twice a week at each selected locations were made.

RESULT AND DISCUSSION:

During the study a total of 91 nests were observed from April 2013 to August 2014. House Crow was observed to breeds from April to August in present study area. Previous studies have indicated that House Crow commonly breeds from April to May and they are successful prolific breeders in variable season, with an average of 3-5 eggs per clutch (Puttoo and Archer 2003, Archer 1990, Feare and Mungroo 1989). . Maximum numbers of nests were observed in May. According to Behrouzi-Rad (2010) nest are categorized into active and old nests. The nests those which are with eggs and chicks are recorded as active nests or breeding nests and old nests are non-active nests which House Crow did not occupy. The nesting sites of House Crow is related with the food availability within the area, nesting sites are located close to food resources, area with poor sanitation had the highest number of nesting sites. House Crow establish their nest on various types of trees like, *Eucalyptus oblique* (Safada), *Ziziphus* sps. (Beeri), *Saraca asoca* (Ashoka), *Azadirachta indica* (Neem), *Melia azedarach* (Dharek) and *Syzygium cumini* (Jamun) trees. They were also found to choose artificial nesting sites like electric power transmission line towers and other suitable places. The use of these structures for nesting purposes seems to be fairly recent development and has enabled some species to expand their breeding ranges into areas where there was a lack of natural nesting sites. According to other workers, House Crow was a tree nester (Ryall 1990) and ledges on buildings were less occasionally selected for this purpose (Roberts 1992). House Crow has single breeding season each year. During breeding season, House Crow were territorial and are formed in pairs or small groups. They have one brood per season but will re-nest if their nest is destroyed. Young crows leave the nest about one month old. During the study it was observed that the House Crow remains active throughout the day, emerging from their roosts at about sunrise to perform various diurnal activities viz. foraging, searching for suitable roosting site and appropriate nesting sites for breeding and same observations were also made by Gupta et al 1998.

Table 1: Nesting site preference (%) by the House Crow.

Sr. no.	Tree species	Location I	Location II	Active nests		Old nests	
				Location I	Location II	Location I	Location II
1	Dalbergia sissoo (Tahli)	3.29	4.39	1.58	6.34	7.14	0.00
2	Eucalyptus oblique (Safada)	21.97	5.49	25.39	6.34	14.28	3.57
3	Syzygium cumini (Jamun)	2.19	0.00	3.17	0.00	10.72	0.00
4	Melia azedarch (Dharek)	5.49	7.69	0.00	7.93	7.14	7.14
5	Populous deltoids (Popular)	18.68	5.49	19.04	3.17	17.85	10.71
6	Ficus religiosa (Piple)	2.19	0.00	3.17	0.00	0.00	0.00
7	Saraca asoca (Ashoka)	8.79	0.00	9.52	0.00	7.14	0.00
8	Azadirachta indica (Neem)	1.09	5.49	1.58	6.34	0.00	3.57
9	Electric power transmission line tower	4.39	3.29	4.76	1.58	3.57	7.14

It was inferred from the observation that overall, the most preferred tree for the nesting was Eucalyptus oblique (27.46) followed by Populous deltoids (24.17) (Table 1). To estimate the breeding population active nests (nests with eggs or chicks) were counted in transects when all breeding population had been bred. The old nests were counted in month of February 2013 and February 2014. At time of these observations, House Crow had not yet started to breed. These nests were used by the House Crow in last years and all of them were empty. Active nest count, old nest count in Location I and location II were 43, 20 and 19, 9 respectively. Nests were also observed on electric power transmission line tower. During this study not more than one active nest was found at any one time in any of the nest trees examined. This suggests that breeding pairs of House Crow although possibly loosely colonial, were intolerant of conspecifics nesting in the same nest tree. During the present study it was noted that House Crow mostly used nesting material of Eucalyptus oblique (Safada) to make its nest. The nest was found to be bulky platform of sticks and twigs frequently intermixed with metal wires, with cup-like depression lined with soft materials such as grass, vegetables fibre, animal hair, wool, feather and similar miscellaneous substances. Metallic material included pieces of wire which were used to hold twigs firmly together and nest cup is lined with soft materials such as grass, roots, soft plant material, hair, thread, similar observation were also made by other workers (Ali 1996, Sinclair et al 1981).

Table 2: Quantitative observation of House Crow nests (n=3)

Parameter	Mean	SD	Range
Total weight (g)	373.33	156.95	250-550
No. of pieces of wire	18.33	8.50	12-28
Weight of wire (g)	51.3	12.85	38.3-64
No. of sticks	230.33	45.98	181-262
Weight of sticks (g)	295.55	110.94	211.7-421.3
Weight of lining (g)	6.5	2.49	4.5-5.7

Quantitative analysis and dimensions of nests (n=3) of House Crow were also done (Table 2). The mean nest diameter (at widest point and narrowest point) was 16.44 and 15.43 cm respectively. The nest cup depth was 7.34 cm having a diameter of 9.68 cm. Sinclair et al 1981 also reported the nest cup with a diameter of 13 cm and cup depth of 9.5 cm. According to Cramp and Perrins 1994, nests have a diameter of 25-30 cm, cup diameter of 12-15 cm and cup depth of 7-10 cm. The nest structure as observed in this study is also similar to that recorded by other worker in the range of species (Fry et al 2000). Thus it was concluded that House Crow was observed to utilize tall trees for roosting, nesting and breeding activities and Eucalyptus sp. was the most preferred tree species and the nests of House Crow were composed of the materials collected from the surrounding habitats. House Crow is well named "Scavenger Bird" around the globe they play different important roles in agricultural ecosystem viz., predators, scavengers and omnivore on one side and pest bird on the other. Further future studies will be needed to help in understanding the role of House Crow in our agricultural ecosystem.

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