

Artificial nesting success and nest building behavior of common myna, *Acridotheres tristis* using paper/plastic

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ABSTRACT

The objective of this paper is to analyze the nesting success and nest building behavior of myna, *Acridotheres tristis*, using paper/plastic Myna in artificial nest. The boxes were placed at different sites, including University Town, Rahat Abad and Qadir Abad in Peshawar City, Pakistan. The artificial nests were designed 56 × 22 cm and 21 × 16 cm in dimension with respective opening of 8 cm and 7 cm. Total number of artificial nests were 55, therein, number of successful next recorded 42 and unsuccessful 13. Artificial nests were installed in breeding season of common myna. Total nesting success was 85.71 in March-April; 68.18 in May-June and 78.94 in July-August 2022. Nest losses were recorded during six months (March to August). Total success rate (%) was 76.36% and the mean (\pm SD) number of plastic collected as nesting material per day was 18.8 ± 3.12 .

Keywords: Artificial nests, Common Myna, Reproductive success, Breeding season.

Article type: Short Communication.

INTRODUCTION

Urban areas might play an essential role in addressing biological diversity conservation challenges. The majority of studies into the habitat requirements of diverse bird species have focused on natural habitats, while urban ecosystems have largely been disregarded (Jokimaki & Huhta 2000). By the fast increasing in urban and suburban development, as well as the subsequent habitat change, clearly, understanding the interaction between birdlife and urban ecosystems is critical (Niemelä 1999). Artificial nests are often used to investigate factors that determine forest bird reproductive success. Artificial nests provide the effect of providing the researcher to measure the number and distribution of nests in the study. It also takes less time to build artificial nests than it does to find natural nests. When using artificial nests, the implicit assumption is that they may serve as a good substitute for actual bird nests, and some researchers have observed that the disturbance rates on artificial nests are comparable to disturbed rates on actual nests (Wilson *et al.* 1998). However, there have been numerous issues raised about using artificial nests and the interpretation of the study results (Wilson *et al.* 1998). Researchers require a better knowledge of how rates of predation on artificial nests compared to natural nests is a helpful tool for the natural nest predation (Major 1991). Artificial nests differ from natural ones in several key aspects that could affect predation rates. A predator's ability to detect nests may be hampered if there is no incubating adult connected to the manufactured nests. Predation rates on manufactured nests may be higher if adults can either hide the natural nest or actively defend it from predators. If predators are drawn to natural nests by the behavior of the adults, the absence of adults may result in decreased rates of predation on manufactured nests (Martin 1987). Common myna,

Acridotheres tristis, can be found in large numbers in all climate zones where they can live. It belongs to the Passeriformes order and the Sturnidae family (Ali *et al.* 1983). In addition, it is an Asian small bird that has spread throughout the world as a result of accidental or deliberated human introductions. Common mynas were identified in location with higher human population numbers and land transformation values more frequently than expected by chance (Peacock *et al.* 2007).

MATERIALS AND METHODS

Nest boxes were installed at selective sites in Peshawar City, Pakistan. The three sites were labeled as site-A (University Town), site-B (Rahat Abad), site-C (Qadir Abad). The nests installed at each site were numbered accordingly as A-1, B-1, C-1, D-1 and so on. Total number of 55 nest boxes were installed at selective sites in the city. In order to record artificial nest of myna, periodic survey was carried out. Active artificial nest was confirmed by breeding activities of common myna. Direct visual method was used nesting success, calculated according to Shah (1984) and Fazili (2002) as follows: $NS \times 100NS + NU$, where NS = Number of Successful nests (i.e., nests in which at least one nestling survived); NU= Number of unsuccessful nests.

Study area

The research work was carried out in Peshawar City, Pakistan, located in the wide valley, surrounded by four districts: Kohat, Charsadda, Khyber Agency and Nowshera. The total area of Peshawar City is 125 km² and is positioned at Latitude 34°01' 50" N and Longitude 71° 58' 05" E). It features a warm semi-arid weather, long summers and short, cool winters. The winter season starts from mid-November through the end of March and summer starts from May through September. The mean temperature in summer ranges from 25 °C to over 40 °C.



Fig. 1. Installation of artificial nests.

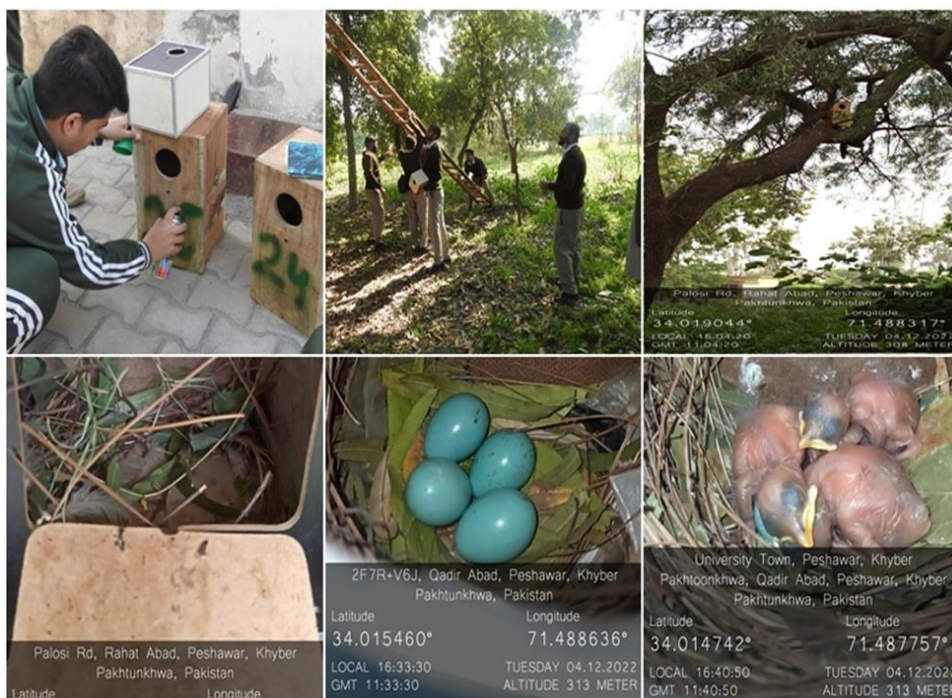


Fig. 2. Showing stepwise progress of nesting

RESULTS AND DISCUSSION

Nesting success of the common myna was studied in artificial nests. The tampering with nest and nesting trees were the major losses of failure. The total 190 common myna was observed from March through August 2022. Nests play an important role in life cycle of birds and the nesting season of common myna start from April through August. The artificial nests were constructed by twigs, jute, cotton, and paper/plastic. The artificial nest was studied in the breeding season. Out of 55 artificial nests, 42 (76.36%) were found successful and 13 unsuccessful (Table 1) due to different reasons including predation tempering starvation (Table 2). The Number of plastics as nesting materials collected per day by common myna was recorded with average of 18.8 ± 3.12 (Table 3).

Table 1. Percentage nesting success of common myna in 6 months (March to August).

Month	Total no of nest studied	No. of successful nests	No. of unsuccessful nests	Site	Total nesting success (%)
March, April	14	12	2	Site-A University town	85.71
May, June	22	15	7	Site-B Rahat abad	68.18
July, August	19	15	4	Site-C Qadirabad	78.94
Total	55	42	13		76.36

Table 2. Nesting details

Month	Total nests Studied	Failed nests	Number of nest loss				
			Desertion	Predations	Starvation	Tampering With nestor nesting tree	Other reasons (wind, rainfall)
March, April	14	2	-	1	-	2	4
May, June	22	7	1	-	-	1	-
July, August	19	4	1	1	-	2	-
Total	55	13	2	2	0	5	4

Table 3. Nest building through plastic/paper behavior of myna in artificial nest (Mean \pm SD).

S. NO	Activity	Common Mayna	Observations
1	Total no. days of observations during the study Period	190	March to August
		$\bar{X} = 18.8$	
2	No. of Paper, plastic collected	SD = 3 12 Range 8 - 32	

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