



Nesting Cycle and Nest Building Behaviour of Three Species of Myna in an Urban Area

KEYWORDS

Nesting cycle, Nest building behavior of Myna.

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ABSTRACT The nest is commonly made up of twigs, grass and feathers and sometimes includes paper. Both the partners participated in the arrangement of the nesting materials. Both the sexes have participated in nidification, both the parents expended almost equal amount of energy in terms of number of feeding trips and amount of food delivered to the nestlings. *A. tristis* on an average, 18.8 ± 3.12 twigs as nesting materials were collected per day. The number of days for nest building an average was 18.73 ± 2.04 per day. *A. ginginianus* on an average, 12.87 ± 4.64 twigs as nesting materials were collected per day and a pair took 15.25 ± 4.08 days for nest building. *S. pagodarum* on an average, 14.12 ± 5.03 twigs as a nesting materials were collected per day and the number of days spent by a pair for nest building an average was 13.5 ± 3.27 per day.

Introduction:

Mynas are classified in order Passeriformes and Family Sturnidae. Three species of myna namely Common Myna (*Acridotheres tristis*), Bank Myna (*Acridotheres ginginianus*) and Brahminy Myna (*Sturnus pagodarum*), which have been studied under this investigation.

A. tristis It is characterized by large, stocky body with black hood and patch of bright yellow bare skin behind eye. Overall body plumage is chocolate-brown but under tail, tip of upper tail, wing patches are white. Bill and legs are yellow.

A. ginginianus is usually found together with *A. tristis*, but have slightly smaller and softer voice than that of *A. tristis*. It is stocky, bluish-grey in color with a deep orange bill and eye patches. The major characters for differentiations are that the coloration *A. ginginianus* is pale bluish grey instead of brown; also the black crown has a sharp boundary as opposed to a gradation and the wing-patch and tips of tail-feathers pinkish buff instead of white.

S. pagodarum is grey upperparts and reddish-orange under parts and black wing quills. The head has a black cap, bill and legs are bright yellow, and there are yellow wattles on the gape. Yellowish bill with blue base and blue or yellow skin behind eye.

STUDY AREA:

The study was confined to Junagadh ($21^{\circ} 31'N$ and $70^{\circ} 49' E$) city a District head-quarter and a picturesque town, which was the former capital of the Princely State of Junagadh. The city is a gate way to famous Gir Forest which is the natural habitat for the last existing population of Asiatic Lion in the wild. Junagadh has a tropical monsoon climate with three distinct seasons i.e., monsoon, winter and summer.

The nesting sites of Mynas were identified viz. Sakkarbaug Zoological Garden (SBZ), Lalbaug (LB), Junagadh Agricultural University Campus (JAU), Raypur Farm Areas (RYP), Police Training Centre (PTC) in Junagadh city area. In this SBZ includes Zoological Garden, LB includes undisturbed and protected area of mixed vegetation of cultivated and natural plants, JAU includes undisturbed farm and garden area,

RYP includes Crops viz., Cotton, Ground nut, Mango, Wheat, Maize, Pearl millet, Mung, Sugar cane, Gram etc. were cultivated throughout the year and PTC in the foot hills of Girnar with rocky terrain. This area is open ground with grassland patches and randomly disturbed native trees. Surrounding

lime stone mines provide water source round the year.

MATERIAL AND METHODS:

Data were collected and analyzed as per standard methodology available from ornithological studies. Intensive nest searching was done in every week during January to August during the study period of two years. Binoculars of 10 x 50 were used to scan the area; while scanning, even a single moving bird was followed which provided clues about its nesting. By following this method, a total of 990 natural nests of Myna were identified from 16 deferent sites within the study area. Twenty five nests were selected for detailed investigations in five selective sites.

RESULT AND DISCUSSION:

They build bulky nests in tree cavities, pockets in buildings, and in heavy vegetation. It nests can be also observed in walls where air-conditioners, water drainpipes, open-ended steel rafters, narrow ledges, traffic lights, palm trees etc. (Cousilman 1974). They too build nests in roofs of houses and even old wells, in the earthen riverine banks that in some parts, the natives hang out for their use though very rarely (Pell et al. 1997). Mostly it nests in the habitations of man and their immediate neighborhood. The nest is commonly made up of twigs, grass, straw and feathers and sometimes includes paper.

Both sexes of *A. tristis* collectively construct a nest of an untidy collection of sticks and miscellaneous debris in any kind of hole or cavity. After laying the pale blue to green-blue eggs that are incubated for 13 to 18 days by both parents. Youngs fledge in 22 to 35 days (Dhanda et al. 1998). During the breeding season, there is usually considerable competition for nesting sites (Mahabal 1993). Favored locations are in the walls and ceilings of buildings, making these birds a nuisance to humans (Kirkpatrick 1950). Nests are also placed in tree hollows, which are used by native birds. Nests of *A. tristis* are quite messy and consisted of a variety of materials (Dhanda et al. 1996). Leaves, grasses, feathers and assorted items of debris are common materials. Violent battles often erupt between occupants of nesting sites and the pair that wishes to evicts them. Each partner grapples with its opposite member and contestants drop to the ground secured in each other's claws and bills are jabbed ruthlessly at the opponent finally, the defeated pair leaves to search for another site (Perkins 2006, Nawab 2005).

The nesting season of *A. tristis* was from March to July in 2007 and 2008. During the observation period of 190 days, a total

of 15 pairs of Common Myna were observed breeding and renovating their nests. It was observed that both the partners participated in the arrangement of the nesting materials. On an average, 18.8 ± 3.12 (range 8 to 32) twigs as nesting materials were collected per day. The number of days for nest building ranged 10 to 23 days (18.73 ± 2.04 ; Table 1).

Parental investment of male and female was different in various reproductive activities. However, there was not any conflict recorded in between the parents. It implies that both the parents seemed to cooperate in the investment of parental care. Both the sexes have participated in nidification, but invested time and energy in different activities. The male mainly devoted its time and energy in searching and bringing nest materials to the nest site and female arranging them into the nest.

The nesting season of *A.ginginianus* started in April to August in 2007 and 2008. During this period of 140 days, a total of 5 pairs of *A.ginginianus* were observed breeding and renovating their nests. It was observed that both the partners participated in the arrangement of the nesting materials. On an average, 12.87 ± 4.64 , (ranged 6 to 18) twigs as a nesting materials were collected per day and a pair took 15.25 ± 4.08 days (range 7 to 17 days; Table 1) for nest building.

According to Pennycuick and De Santo (1989), a flight is energetically costly and frequent flights required gathering the nesting materials. Therefore male's contribution is greater than a female's in nest building on the other hand, egg production require appreciable amount of energy (King 1973), that may impose greater energetic stress on a female than sperm production in a male. Energetically less costly role of female in the nest building relieved it from additional energy stress. Thus the role of sex partitioning in the mynas equalized by relative contribution of each sex during the early pre-laying and pre-laying periods. During early pre-laying period, the female was recorded to allocate more time than a male because the male often remained away from a nest for the collection of nesting materials. In absence of male, female defended the nest but it never participated to chase away an intruder without its male. A male usually remained vigilant in nearby area while collecting the nesting materials and often arrived at the nest in response to the female's signals.

The nesting season of *S. pagodarum* started in May to July in 2007 and 2008. During the breeding season of 160 days, a total of 5 pairs of *S. pagodarum* were observed breeding and renovating nests. It was observed that both the males

and females participated in the arrangement of the nesting materials. On an average, 14.12 ± 5.03 ranged 8 to 24 twigs as a nesting material were collected per day and the number of days spent by a pair for nest building ranged from 9 to 21 days (13.5 ± 3.27 ; Table 1).

Chick rearing is energetically very costly period of the nesting cycle (Ricklefs 1974, Walsberg 1983b). The collection of food for the young and for self maintenance imposes considerable energetic stress on parents. Therefore, co-ordination between the parents is very essential during this period. In accordance to the assumption, both the parents expended almost equal amount of energy in terms of number of feeding trips and amount of food delivered to the nestlings.

Table 1 Nest building behaviour of Myna (Data presented as the Mean \pm SD).

Sr. no.	Activity	Statistics		
		Common Myna	Bank Myna	Brahminy Myna
1	Total no. days of observations during the study period	190	140	160
2	No. of pairs observed	15	5	5
3	No. of twigs collected per day	$\bar{xx}=18.8$	$\bar{xx}=12.87$	$\bar{xx}=14.12$
		SD=3.12	SD=4.64	SD=5.03
		Range 8 to 32	Range 6 to 18	Range 8 to 24
4	No. of days spent by a pair for nest building	$\bar{xx}=18.73$	$\bar{xx}=15.25$	$\bar{xx}=13.5$
		SD = 2.04	SD=4.08	SD = 3.27
		Range 10 to 23	Range 7 to 17	Range 9 to 21

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