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Selection of nesting sites and Nest dimensions of Bank Myna (*Acridotheres ginginianus*) at Junagadh, Gujarat, India

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Abstract

Bank Myna built its nest mostly in bridges and wells. Distance between breeding, feeding and roost sites also played an important role in the selection of breeding sites, along with safety, from predator, and interspecies completion. Nesting time usually start from May and ends by August. Artificial wooden nests were preferred. The diameter of a natural nest entrance of the Bank Myna ranged from 9 cm to 10 cm but in an artificial nest entrance was 9.6 cm to 10 cm; the depth of a natural nest cup ranged from 6.2 cm to 8 cm and in an artificial nest cup ranged from 6.3 cm to7.2 cm. The weight of nesting materials in a natural nest varied from 9.13g to 22.94g but in an artificial nest varied from 8.1g to 18.1g.

Keywords: Selection of nesting site of Bank Myna.

Introduction

Bank Myna (*Acridotheres ginginianus*) belongs to the Domain (Carl woese 1990): Eukariota, Kingdom: Animalia, Phylum: Chordata, Class: Aves, Order: Passeriformes, Family: Sturnidae, Genus: *Acridotheres*, Species: *ginginianus* (Ali *et al.* 1987). This species is found to be breeding mostly in bridges and wells, etc. It's also known Ghoda kabar in Gujarati. It characteristic is stocky, bluish-grey in color with a deep orange bill and eye patches. Nesting time usually start from May and ends by August.

Study area

The study was confined to Junagadh (21º 31'N and 70º 49' E) city a District head-quarter 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 Bank Myna (*A. ginginianus*) were identified *viz.* Sakkarbaug- Zoological Garden area, Lalbaug- undisturbed and protected area of mixed vegetation of cultivated and natural plants, Junagadh Agricultural University Campus- undisturbed farm and garden area, Raypur- Farm Areas, Police Training Centre- foot hills of Girnar with rocky terrain. This area is open ground with grassland patches. Surrounding lime stone mines provide water source round the year in Junagadh.

Materials 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 method, natural nesting was observed in 16 different nesting sites and 6 artificial nests were selected for detailed investigations in five selective sites.

Nest and Nest material: Artificial nests

Surveys were conducted to record nest of mynas; and each nest was labeled. Status of the occupied nest by the myna was recorded as newly built nest or reused old nest was deserted. Measurements of a nest such as nest entrance diameter, nest depression (Cup) diameter and depth of cup were recorded after completion of breeding season to minimize disturbances to nesting pairs.

Results and Discussion

Nesting area of Artificial and Natural nest

For artificial nest study, total of 125 nest boxes, of five different types having 173 nests were fixed on various locations, such as tree, wall, well and electric pole at five different sites at study area. Detail study in Effect of Artificial Nest on Three Species of Myna in at Junagadh, Gujarat, India (Dhandhukia 2015). Natural nesting of the Bank Myna was recorded from 8 different sites in the city area of Junagadh.

Selection of nesting sites

Six Artificial nesting site was observed and natural nesting sites was observed in 16 different nesting sites, all the three species varied in their preference, depending on biotic and abiotic components. Common Myna was observed using Timbavadi and Upercot most frequently whereas Brahminy Myna used Upercot and Raypur, Bank Myna used only Raypur. These observations revealed that the nesting habitats of the three different species were different. Common Myna being a solitary hole nester could locate a suitable site within habitations and in its proximities. Bank Myna being a species fond of breeding is loose colonies, especially on the banks/earthen cuttings near to water sources, such sites are available usually a little away from human habitations. Therefore, the nesting of this species was observed usually in the outskirts of habitations. Distance between breeding and feeding sites also played an important role in the selection of breeding sites, along with safety, from predates, and interspecies completion. (Dhandhukia *et al*. 2012).

The nest is built in roofs of houses, holes of walls, trees, railway station and wells. Birds readily accepted nest boxes. Occasionally the old nest of a squirrel is adopted (Whistler 1949). Its colony size is often delimited by the availability of holes in manmade structures like bridge. The Bank Myna is a social bird and remains in flocks even during the breeding season; It is named so because it builds its nest at earthen banks in the sides of a well or in holes, which the bird excavates for itself, always near the vicinity of water (Ali and Ripley 1983). Its colony size is often delimited by the availability of holes in manmade structures like bridge.

Previous experience is also important in habitat selection in the birds (Klopfer 1963). It is probably because of familiarity to an area, which may permit to take advantages of favorable foraging, predator avoidance and nesting sites that enhance reproductive success (Hinde 1956; Greenwood and Harvey 1982). Similarly nesting nearby the roost site is also advantages for the same. Moreover, the main nesting areas viz., Sakkarbaug and Lalbaug were also the major roost sites that may be favored by social interactions and familiar environment especially foraging sites that probably make easy settlement of breeding pairs. Availability of food is another factor affecting nest site selection.

Selection of nesting site is considered to be one of the most important factors in reproductive success in many birds' species (Coulson 1968, McCrimmon 1978, Rendell and Robertson 1989, Li and Martin 1991, Tuomenpuro 1991). Nest site selection in some birds such as American White Ibis is strongly affected by the availability of foraging sites (Kushlan 1976a). It has been recorded that in some species, reduced reproductive success has been attributed to poor nest site selection (Frederick 1986). Therefore, the study on nest site requirement of a bird species is fundamental to understand the management implications and its conservation. However, Nesting activities of mynas were studied to know the factors affecting the selection of nesting habitat, nesting tree/material and its importance for the management of the species for the purpose of conservation.

During this study, it was observed that artificial wooden nests were preferred. Bank Myna preferred nests with dimensions of 20h x18w x 18d cm with an entrance of 6 to 7 cm ; It was not attracted by similar nests on trees, walls, etc, but it was attracted only, if the nest is located below a particular depth (4 to 12 meter) especially single wooden nest (S) in wells (Dhandhukia 2015).

Size of nest

The diameter of a (n = 6 nest) natural nest entrance of the Bank Myna ranged from 9 cm to 10 cm in 2010 ($\bar{x}$ = 9.42, SD = 0.45) and 8.4 cm to 10.4 cm in 2011 ($\bar{x}$ = 9.22, SD = 0.64). The depth of a nest cup ranged from 6 cm to 7 cm in 2010 ($\bar{x}$ = 6.42, SD = 0.45) and 6.2 cm to 8 cm in 2011 ($\bar{x}$ = 7.07, SD = 0.53). The weight of nesting materials in a nest varied from 9.13g to 22.94g in 2010($\bar{x}$= 13.41, SD = 4.63) and 10g to 39.86g in 2011 ($\bar{x}$ = 19, SD = 9.96 Table 1).

The diameter of an (n = 6 nest) artificial nest entrance of Bank Myna was 10 cm in 2010 ($\bar{x}$ = 10, SD = 0.00) and 9.6 cm to 10 cm in 2011 ($\bar{x}$ = 9.83, SD = 0.17). The depth of a nest cup ranged from 6 cm to 7 cm in 2010 ($\bar{x}$ = 6.60, SD = 0.43) and 6.3 cm to7.2 cm in 2011 ($\bar{x}$ = 6.90, SD = 0.42). The weight of nesting materials in a nest varied from 8.1g to 18.1g in 2010 ($\bar{x}$ = 11.78, SD = 4.51) and 9.1g to 24.6g in 20411 ($\bar{x}$ = 14.42, SD = 7.21 Table 2).

It makes its nests in holes excavated in the banks of rivers or under bridges. The holes averaged about 3 inches in diameter, the excavation may go up to 10 feet deep, the egg-chamber was floored with a loose nest of grass, a few feathers, and in many instances, bits of snake slough.

Table 1 Natural nest dimensions (n=6); Year 2010-2011

No.	Dimensions	Statistics $\bar{x}$ ± SD	
1	Diameter (cm)	9.42 ± 0.45	9.22 ± 0.64
2	Depth of nest cup (cm)	6.42 ± 0.45	7.07 ± 0.53
3	Length of nest cup (cm)	9.25 ± 0.38	8.92 ± 0.74
4	Weight of the nest (g)	13.41 ± 4.63	19.00± 9.96
5	No. of sticks used in the nest	1.07 ± 0.50	1.03 ± 0.44
6	No. of non plant material used in the nest (Plastic,Metalwire,Feather,Snake slough)	0.49 ± 0.29	0.50 ± 0.07

Table 2 Artificial nest dimensions. (n=6). Year 2010-2011.

No.	Dimensions	Statistics $\bar{x}$ ± SD	
1	Diameter (cm)	10.00 ± 0.00	9.83 ± 0.17
2	Depth of nest cup (cm)	6.60 ± 0.43	6.90 ± 0.42
3	Length of nest cup (cm)	9.57 ± 0.42	9.17 ± 0.52
4	Weight of the nest (g)	11.78 ± 4.51	14.42 ± 7.21
5	No. of sticks used in the nest	0.42 ± 0.06	0.48 ± 0.03
6	No. of non plant material used in the nest(Plastic, Metal wire, Feather, Snake slough)	0.33 ± 0.22	0.53 ± 0.13

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