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Effect of Artificial Nest on Three Species of Myna in at Junagadh, Gujarat, India

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ABSTRACT

Common Myna preferred nesting dimension of 30 x 15 x 30 cm (wooden nest) and 30 x 16 cm (earthen pot) had maximum success with Entrances diameter of 7 cm. Bank Myna preferred nests with dimensions of 20 x18 x 18 cm (wooden nest) with an entrance of 6 to 7cm. 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 in wells. Artificial nests were more preferred by Common Myna rather than Bank Myna and Brahminy Myna. Common Myna preferred S, D, TL, F and EP type nest, but Bank Myna preferred only S type and in Brahminy Myna preferred S and EP types.

KEYWORDS Effect of Artificial nest on Myna.

INTRODUCTION:-

Mynas are commonly observed in large populations (Ali et al. 1983) in all climatic zones where it can survive. Mynas are classified in order Passeriformes and Family Sturnidae. This paper reports studies on tha effect of artificial nest on three myna species; Common Myna (Acridotheres tristis), Bank Myna (Acridotheres ginginianus) and Brahminy Myna (Sturnus pagodarum) was done in Junagadh, Gujarat.

STUDY AREA:-

The study was confined to Junagadh (21° 31'N and 70° 49' E) city a District head-quarter and a picturesque town. 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. The nesting sites of three species of Mynas were identified viz. Sakkarbaug Zoological Garden, Lalbaug, Junagadh Agricultural University Campus and Raypur Farm Areas.

MATERIAL AND METHOD:-

Data were collected and analyzed as per standard methodology available from ornithological studies.

Characteristic of artificial nests:-

Two different types of artificial nests, earthen pots and wooden boxes were placed for studying nesting behaviour and biology during January 2007 to December 2008. A total of 125 nest boxes with Earthenpot were placed at 5 different sites, which were Sakkarbaug zoo (SBZ), Lalbaug (LB), Junagadh Agricultural University (JAU), Police training centre (PTC) and Raypur (RYP). Wooden boxes were modified into 4 different types such as Single entry single compartment wooden (S), Double entry double compartment wooden (D), Three entry three compartment longitude wooden (TL), Four entry Four compartment wooden (F) and Earthenpot (EP), thus making a total of 173 artificial nests at different locations such as tree, wall, well and electric pole, etc. All the nests were marked site wise. The nests were placed at 3m to 4m above the ground level. At site Raypur, 10 nests were placed in the well about 13 to 40 feet deep from ground level (wells). All nests were monitored daily during the egg laying period, twice a week after clutch completion and again daily near the expected date of hatching (Plate 1).

RESULTS AND DISCUSSION:-

Breeding season of Common Myna is March to August at Junagadh. Here, the breeding season is defined as the period between the initiation of the first and the last clutches in the population (Campbell and Lack 1985). During this study, it was observed that artificial wooden and earthen nests were preferred. Most of the artificial nest boxes were occupied by Common Myna along with other species such as Rose-ringed Parakeet, Oriental Magpie Robin, and Spotted Owlet.

Nest specifications and nesting success:-

Analyses of nesting success of Common Myna revealed that nests with dimension of 30 x 15 x 30 (cm), had maximum success of 13.56 % and Dimension of 30 x 16 cm (earthen pot), had maximum nesting success of 44.07% (Table 1). Entrances of various nest used in study, varies from 4 to 9 cm. Entrances of 7 cm had maximum nesting success (22.22%) followed by 6 cm nest entrance , with nesting success of 18.18% (Table 2).

In artificial nests also the selection of nest type was different in Common Myna, Bank Myna and Brahminy Myna. Artificial nests were more preferred by Common Myna rather than Bank Myna and Brahminy Myna. Common Myna preferred S, D, TL, F and EP type nest, but Bank Myna preferred only S type and in Brahminy Myna preferred S and EP types.

The locations of boxes also play an important role for selection. Boxes fixed on the outer wall of a house or buildings were often occupied by the House Sparrow. Such competition occurs with Magpie Robin also when the box is hanged on tree. Between them, the Magpie Robin was observed successful. Similar competition was also observed by Panicker (1980). Although selection of natural nesting sites was observed in 16 different places, all the three species varied in their preference, depending on biotic and abiotic components. 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 in loose colonies, especially on the banks/earthen cuttings near to water sources, such sites are available usually a little away from human habitations; Distance between breeding and feeding sites also played an important role in the selection of breeding sites, along with safety from predators, and inter specific completion (Dhandhukia 2012).

Breeding season of Bank Myna is May to August. The nest holes averaged about 3 inches in diameter, the excavation may go up to 10 feet deep (Whistler 1949). Fig. 1 revealed that 47% in artificial nest and 50% in natural nest during 2007, 67% in artificial nest and 63% in natural nest during 2008 were successful. This indicated that nesting success did not differ significantly in artificial and natural nest for Bank Myna.

Bank Myna preferred nests with dimensions of 20h x18w x 18d cm with an entrance of 6 to 7 cm (Table 1 & 2). 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 in wells. The nesting success of Bank Myna described in Table 3 revealed that in 2007, nesting success was only in S type with a percentage of 5.88% (3 success nest out of 51) and similarly in 2008 the nesting success was 7.84% (4 success nest out of 51). Bank Myna did not use nests of D, TL, F and EP types.

Breeding season of Brahminy Myna is May to July. The nest height varied depending upon the availability of suitable sites. Panicker (1980) observed that when barbets completed their breeding, the nest was taken over by Brahminy Mynas at the height of 5.18 to 7.62 meters.

Nesting success data shown in Table 3 revealed that in 2007; the success of nesting of Common Myna was17.64% (in S; n = 9), 37.5% (in DL; n = 6), 16.66% (in TL; n = 4), 12.5% (in F; n = 4) and 14% success (in EP; n = 7). Similarly in 2008 Common Mynas nesting success was 25.94% (in S; n = 13), 50% (in DL; n = 8), 33.33% (in TL; n = 8), 25% (in F; n = 8) and 64% success (in EP; n = 32). In Brahminy Myna nesting success data revealed that it preferred only type S and EP nests. In 2007 nesting success in type S was 5.88% (3 success nests out of 51) and for EP types it was 8% (4 success nest out of 50). Similarly in 2008 also it used type S (11.76%; 6 success nest out of 51) and for EP type (6%; 3 success nest out of 50). Brahminy Myna did not prefer D, TL and F type nests.

The nesting analysis (Table 1 & 2) indicates that, Brahminy Myna preferred nesting dimension 30 x 16 cm and an earthen type of nest, with 6 to 7cm nest entrance diameter. There were competitions between Common Myna and Brahminy Myna for nest and the final selection of the nest was based on the diameter of entrance, Brahminy Myna made successful nest only with 4 cm diameter entrance. Bank Myna preferred nests with dimensions of 20 x18 x 18 cm with an entrance of 6 to 7cm. Tyagi and Lamba (1984) reported that in nature, a hole in a tree or a wall is the most common. Nest boxes of size 15 x 15 x 22 cms with the entrance hole of 4 cm diameter and nailed on trees and walls at a height of 3 to 12 meters were selected.

Table 1 Nest dimension with percentage of success for nest.

Sr. No.	Nest dimension	Type of nest	Total No. of nest	Percentage of success nest					
	HXWXD in cm			Common Myna		Bank Myna		Brahminy Myna	
				2007 (n=40)	2008 (n=59)	2007 (n=3)	2008 (n=4)	2007 (n=6)	2008 (n=10)
1	15*15*15	S	4	0	0.00	0	0	16.67	20
2	20*18*18	S	47	22.5	22.03	100	100	33.33	40
3	30x15x30	D	16	15	13.56	0	0	0	0
4	30*15*30	TL	8	15	6.78	0	0	0	0
5	15*15*30	TL	16	2.5	1.69	0	0	0	0
6	15*15*30	F	32	12.5	11.86	0	0	0	0
7	30*16	EP	50	32.5	44.07	0	0	50	40
	Total	7	173	100	100	100	100	100	100

Table 2 Nest entrance diameter and successful nest percentage.

Sr. No.	Type of nest	Nest entrance diameter (cm)	No. of nest	Success %		
				Common Myna (n= 99)	Bank Myna (n=7)	Brahminy Myna (n=16)
1	S	5	8	0.00	0.00	18.75
2	S	7	94	22.22	100.00	37.50
3	D	8	16	9.09	0.00	0.00
4	D	9	16	5.05	0.00	0.00
5	TL	8	16	0.00	0.00	0.00
6	TL	7	16	7.07	0.00	0.00
7	TL	9	16	5.05	0.00	0.00
8	F	7	64	12.12	0.00	0.00
9	EP	4	10	2.02	0.00	31.25
10	EP	5	30	5.05	0.00	12.50
11	EP	6	20	18.18	0.00	0.0
12	EP	7	20	12.12	0.00	0.0
13	EP	8	20	2.02	0.00	0.0
		Total	346	100	100	100

Table 3 Number of successful artificial nest and Breeding Success.

Species	Year	Total no. of nest fixed	Successful nest						% of Breeding Success	
			Wooden				Earthen pot	Total	Artificial nest	Natural nest
			S (51)	D (16)	TL (24)	F (32)	EP (50)	173		
Common Myna	2007	173	9	6	4	4	7	30	46	45
	2008	173	13	8	8	8	32	69	63	50
	Total	346	22	14	12	12	39	99	109	95
Bank Myna	2007	173	3	0	0	0	0	3	47	50
	2008	173	4	0	0	0	0	4	67	63
	Total	346	7	0	0	0	0	7	114	113
Brahminy Myna	2007	173	3	0	0	0	4	7	33	43
	2008	173	6	0	0	0	3	9	62	48
	Total	346	9	0	0	0	7	16	95	91

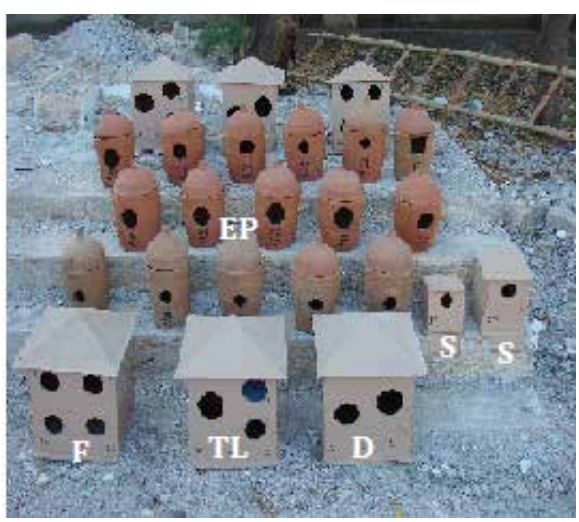


Plate: 1 Types of Artificial Nest

REFERENCES

Ali, S., and Ripley, D. (1983). Handbook of the Birds of India and Pakistan. Oxford Univ. Press, Bombay. | Campbell, B., and Lack, E. (1985). A Dictionary of Birds. T and AD Poyser, Ltd, Calton. | Dhandhukia, S. N. (2012). Study of Ecology and Behaviour of Three Species of Myna in Junagadh City, Gujarat. Ph. D. Thesis submitted to the Bhavnagar University, Bhavnagar. | Panicker, K. N. (1980). Ecology of hole nesting bird. J. Bombay Nat. Hist. Soc 75: 1227-1237. | Tyagi, A. K., and Lamba, B. S. (1984). A contribution to the breeding biology of two | Indian Mynas. Rec. Zool. Surv. India, Calcutta. Ocassional paper No. 55: 1-108. | Whistler, H. (1949). Popular handbook of Indian birds. Fourth ed. Gurney and Jackson. London.