

Study on Occupancy Preferences in Artificial Nest Boxes by Common Myna and Indian Ringneck Parakeets on Different Parameters

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Abstract

Wooden nests boxes serves as an important conservational tool for maintaining the declining bird population as they increase and enhance nesting opportunities for a range of birds. The study on artificial nest boxes is done for three different parameters such as colour preference, direction of the nest and once occupied nest by Common myna and Indian ringneck parakeet. Installation of the same size nest boxes of different colours in four different habitats on different tree species in Khalsa College for Women, civil lines, Ludhiana in the year 2015-16 and 2016-17. Over the study period the observations revealed that occupancies in artificial nest boxes by Common myna were higher in green coloured boxes whereas other bright coloured boxes were least occupied by them, the direction of the nest played no significant role on overall occupancy. Indian parrots preferred nest boxes once occupied by common myna at different locations.

Keywords: artificial nests, common myna, colour, direction

Introduction

Nestboxes increase and enhance nesting opportunities for a range of bird species

(du Feu 1993). Accordingly, many ornithological studies around the world

have been based on the use of nestboxes by birds (Newton 1998) and some of these have shown that nest success is better in purpose-built boxes than in naturally occurring nest sites (Nilsson 1975, Möller 1989). Within Europe 14% (60 species) of breeding birds use cavities for nesting (Newton 1998) and many of these use nestboxes. The availability of suitable natural nesting sites is probably much lower today than at any other time in recent history and for certain species this can limit breeding density (Newton 1998). In the increasing urbanization of the countryside, the removal of dead and old trees from hedges, parks and woodland and a number of storms have reduced the number of natural nesting sites available to birds. Many bird conservation organizations recognize that the installation of a nestbox is one of the easiest and most obvious contributions that anybody can make to the protection and conservation of birds.

The Indian common myna or *Acridotheres tristis* (Sturnidae: Passeriformes: Aves) was introduced throughout New Zealand in the 1870's by locals and Acclimatisation Societies (Bull *et al* 1985). Common mynas continue to

flourish in the northern and central North Island, and are usually more abundant than most native birds in gardens and parks (LCR, 2008). They build bulky nests in tree cavities, pockets in buildings, and in heavy vegetation. The nest is commonly made up of twigs, grass, straw and feathers and sometimes includes paper. 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, Ryder and Ryder 1981, 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 1976). It has been recorded that in some species, reduced reproductive success has been attributed to poor nest site selection (Burger and Miller 1977, Frederick 1986, 1987). Therefore, the study on nest site requirement of a bird species is fundamental to understand the management implications and its conservation. Common Myna in present study initiated breeding activity in March which lasted up to August, extending over a period of six months. The species builds a bowl-shaped nest out of twigs (Counsilman 1974a; Harper et al. 2005) and green leaves are normally added in the final stages (Wilson 1973). A study on Tits shows that tits choose to nest in wooden boxes that are green rather than brown. whilst it is accepted that birds perceive colours differently from humans (Cuthill et al. 2000), the reasons why a bird should choose a nestbox of one colour rather than another are difficult to comprehend. Tits appear to perceive that a nestbox of one colour is more suitable than one of another colour. It is possible that the different

coloured preservatives contain chemicals that smell or taste different to birds.

Objectives

To study the occupancy preferences in artificial wooden nest boxes by various birds species

To evaluate the use of wooden nest boxes as conservational tool for maintaining the declining bird population

Methodology

A total of 12 different coloured artificial wooden nests boxes were installed at four different location of the college Campus i.e A- near Principal's office, B-near Registrar office, C-canteen side and D-Back side of college near Khalsa Deewan in April 2015 and observed up to the month of February 2016 .The nest boxes were removed from their locations and all are painted with dark green colour to make them camouflaged with the surroundings and reinstalled on the same locations in the month of march 2016 and observed up to march 2017. These artificial wooden boxes were installed at the height of about 3 metres to 6metres on the tree trunk in the study area.

Each nest boxes with square opening has dimensions 25 cm height, 21 cm width and 20cm length with entrance of 9cm at the height and 8.3 cm in front(Total area of entrance=74.7cm²) It has 6 holes at the back for aeration and fixing it with strings on the tree trunk and two at bottom for drainage

These were installed in April 2015 to February 2016 and again in March 2016 to March 2017 which gives these birds a lot of

time to become accustomed to these artificial nest boxes. They were monitored time to time. Breeding season of common myna is from March to August. Indian ringneck parakeets typically breed between October- March, although this season is slightly extended in some cases,



however, the breeding season will vary depending on the climate. Line transect method was used for observation.

Results and Discussion

During the study it was observed that out of 12 total artificial wooden nests boxes with different colours were installed at four different locations i.e nesting sites of the college Campus i.e A- near Principal's office, B-near Registrar office, C-canteen side and D- Back side of college near

Khalsa Dewan (Table 1). Numbers of birds were observed collecting nesting material like twigs, leaves, polythene, grass, feathers of birds, plastic etc for their nesting habitat. In the first study area near A-Principal's office- 4 artificial nest boxes were installed, one red colour on *Caryota urens* (Fish tail palm) and one yellow on *Syzygium cumini* (Jamun) tree

one blue colour and one light green colour were installed on *Magnifera indica* (Mango) and *Caryota urens* (Fish tail palm). Second study area B- near Registrar's office – 4 artificial nest boxes red, blue, light green were installed on *Dalbergia sissoo* (Tali), *Delonix regia* (Gulmohar), *Caryota urens* (Fish tail palm). In the third area C-canteen side. In this area 2 nest boxes of yellow and blue were installed on 2 trees and *Dalbergia sissoo* (Tali) and *Delonix regia* (Gulmohar). In the fourth study area near Khalsa Dewan -3 artificial nest boxes yellow and red were installed on *Dalberia sissoo* (Tali) and *Aegle marmelos* (Bel). The observations revealed that most of the artificial nest boxes of different colours that were installed in year 2016-17 were least preferred by common myna and Indian parrot. Only two or three nest boxes were visited by the birds but they did not breed in those nests. When the nest boxes were painted with dark green colour and reinstalled in March 2016, it has been observed that the common myna started visiting the nest boxes after one month of installation in nest boxes present on *Caryota urens* (Fish tail palm), *Dalbergia sissoo* (Tali) and *Aegle marmelos* (Bel) and made their nests and breed in them. They vacated the nests in month of august and the most of these nests were occupied by parrot in October 2016 for making nests and breeding. (Table 1).

Conclusion

Thus, the study signifies that colour of the artificial nest box had a significant effect on overall occupancy. Nest boxes installed in march 2015 with bright colours were not preferred by Common myna for making nest in them. The reason may be that the bright coloured nest boxes were not camouflageable with the surroundings and easily observed by the predators and attract many insects. Observations revealed that occupancies in artificial nest boxes by Common myna were higher in dark green coloured boxes and completed their breeding cycle in the nest boxes which were re installed after painting with dark green colour in March 2016. The direction of the nest played no significant role on overall occupancy. Tree size, species and landscape has no significance upon the overall occupancy of common myna. Indian parrots preferred nest boxes once occupied by common myna at different location but mostly they prefer the naturally occurring holes in tree trunks. It may be due to high thermal insulation in tree trunks.

Observations

Table 1: Detailed description of the artificial nest boxes placed at various sites of Khalsa College for Women, Civil lines, Ldh

Sr. No.	Site No.	Tree name	Direction of nest box	Height of nest Box from the ground (in feet)	Nest box colour installed in april 2015-February 2016	Nest boxes occupied	Nest Boxes installed in February2016-march 2017	Nest boxes occupied
1	A	<i>Caryota urens</i> (Fish tail palm)	North	12	Red	Not Occupied	Dark Green	Occupied
		<i>Syzgium cumini</i> (Jamun)	West	14	Yellow	Not Occupied	Dark Green	Occupied
		<i>Magnifera indica</i> (Mango)	North	13	Blue	Not Occupied	Dark Green	NO
		<i>Caryota urens</i> (Fish tail palm)	South	14	Light green	Occupied	Dark Green	Occupied
2	B	<i>Dalbergia sissoo</i> (Tali)	West	13	Red	Occupied	Dark Green	Occupied
		<i>Delonix regia</i> (Gulmohar)	North	12.5	Blue	Not Occupied	Dark Green	Not Occupied
		<i>Caryota urens</i> (Fish tail palm)	North	12	Yellow	Not Occupied	Dark Green	Occupied
		<i>Bombax ceiba</i> (Semal)	West	13	Light green	Not Occupied	Dark Green	Not Occupied
3	C	<i>Dalbergia sissoo</i> (Tali)	West	12.5	Yellow	Not Occupied	Dark Green	Occupied
		<i>Delonix regia</i> (Gulmohar)	North	11.8	Light Green	Not Occupied	Dark Green	Occupied
4	D	<i>Delonix regia</i> (Gulmohar)	North	11.8	Red	Not Occupied	Dark Green	Occupied
		<i>Aegle marmelos</i> (Bel)	East	12	Yellow	Not Occupied	Dark Green	Occupied

Study area type :-

- A- near Principal's office,
- B-near Registrar office,
- C-canteen side
- D- Back side of college near Khalsa Dewan

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