



Breeding biology of Oriental Magpie-Robin (*Copsychus saularis*) in Tarapur Atomic Power Station (T.A.P.S) colony 1&2, Boisar, Maharashtra.

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ABSTRACT

In order to develop ornithological science, collection and interpretation of field data on different aspects of birds' life are considered imperative. In this study the **Oriental Magpie-robin** (*Copsychus saularis*) was observed for 27 days in which it completed full cycle of breeding season. Eggs were laid around 24 hrs intervals and we could observe total 5 eggs. Incubation period was spread up to 15 to 18 days. Development of feathers took place within 11 to 12 days. Survivor rate was found to the tune of 20%. The bird nested the nest in the unused phone main box at ground floor of this building. They line the cavity with grasses and Gulmohar branches. The breeding season of the Oriental Magpie robin has been discussed

KEYWORDS

Breeding biology, clutch size, *Copsychus saularis*.

Introduction

Studies on behavioural ecology of birds provide essential information in the field of evolutionary biology. Ornithology can develop and mature mainly by the collection and proper interpretation of real data collected in the field on different aspects of birds' life, Nolan (1978).

The **Oriental magpie-robin** (*Copsychus saularis*) is a small passerine bird that was formerly classed as a member of the thrush family Turdidae, but now considered an Old World flycatcher. They are distinctive black and white birds with a long tail that is held upright as they forage on the ground or perch conspicuously. Occurring across most of the Indian subcontinent and parts of Southeast Asia, they are common birds in urban gardens as well as forests. They are particularly well known for their songs and were once popular as cage birds. The oriental magpie-robin is considered the national bird of Bangladesh. (https://en.wikipedia.org/wiki/Oriental_magpie-robin)

This species is 20 centimeters (85 in) long, including the long tail that is usually held cocked upright. It is similar in shape to the smaller European robin, but is longer-tailed. The male has black upperparts, head and throat apart from a white shoulder patch. The under parts and the sides of the long tail are white. Females are greyish black above and greyish white. Young birds have scaly brown upperparts and head. By and large affect the neighborhood of human habitations – Garden Orchids and village groves etc. Also dry deciduous forest and open secondary jungle Ali & Ripley (2007). It is mostly seen close to the ground, hopping along branches or foraging in leaf-litter on the ground with cocked tail. Males sing loudly from the top of trees or other high perches during the breeding season. Males of Magpie Robin are well known for their complex song delivery Bhatt et al., (2000). The females have also been reported to sing briefly in the presence of male, Kumar & Bhatt (2002).

This magpie-robin is a resident breeder in tropical southern Asia from Bangladesh, interior India, Sri Lanka and eastern Pakistan east to Indonesia, Thailand, south China, Malaysia, and Singapore. The oriental magpie-robin is found in open woodland and cultivated areas often close to human habitations. The diet of magpie robins includes mainly insects and other invertebrates. Although mainly insectivorous, they are known to occasionally take flower nectar, geckos, leeches, centipedes, fruits and even

fish. Robins mostly feed on invertebrates and there are records of them feeding on geckos Sumithran (1982) & Saxena (1998).

The Magpie Robin is a secondary cavity nester that uses naturally occurring tree cavities for nesting Ali & Ripley (2001). As a general rule, populations of cavity nesters are often limited by the density of suitable nest sites Newton (1998). Urbanization, a form of development is increasing worldwide and severely affecting local and global ecological systems Marzluff, (2001); Imhoff *et al.*, (2004). Cavity-nesting birds may be especially sensitive to urbanization because they depend on cavity bearing trees for nesting, roosting, and foraging Thomas *et al.*, (1976); Davis, 1983 and Bull, *et al.*, (1997). This species is least concerned at global level IUCN (2012) except some places like Singapore where it is listed as endangered Davison *et al.* (2008).

Material and Method

This study was conducted at Tarapur Atomic Power Station (T.A.P.S) colony 1&2, Boisar (W) Maharashtra. The study area is lying between 19°48'57"N 72°44'30"E. Coordinate this study was carried out regularly on a daily basis during the study period. All observation were made using a 10 X 50 Nikon binocular and photos by Lumia 625. Observations were made to record different breeding activities such as egg laying, incubation, parental provisioning, behavior of young etc.

The tarapur residential is lush green having colony vegetation with different types of trees and abundant seedlings and saplings of both evergreen and deciduous trees.

Result & Discussion

In our study at TAPS colony we found the nest with three eggs on the 1st may 2015. Magpie robins breed mainly from March to June (Western Ghats Maharashtra). Ali and Ripley (2007). Both chose the place for building the nest. In our observation we found that Magpie robin selected the old building with a phone box attached to the wall. They line the cavity with grass. The female was involved in most of the nest building that happens about a week before the eggs were laid, Bhutt *et al.* (2014). Five eggs were laid at intervals of about 24 hours and these were oval and usually pale blue green with brownish speckles which match the color of hay. The incubation responsibility in our study was taken by the female specifically for 8 to 14 days. Similar observations were also recorded by Ali (2007).

Females took more efforts on feeding the young than male. Male was quite aggressive in the breeding season and defended their territory, Cholmondeley (1906). They were responding to the singing of intruders and even their reflections. Male spend more time on the defense of nest. The calls of many other species may be imitated as part of their song Neelakantan (1954). They appear to use elements of the calls of other birds in their own songs. Females may sing briefly in the presence of male. Apart from their song, they use a range of calls including territorial calls, emergency and roosting calls, threat calls, submissive calls, begging calls and distress calls. The typical mobbing calls are a harsh hissing *krshhh*.

In general, most of the studies showed lower breeding success in tree cavities compared to nest boxes Nilsson (1975), (1986), Balen *et al.* (1982), East and Perrins (1988), Alatalo *et al.* (1990), Lundberg and Alatalo (1992), Purcell *et al.* (1997). Contrary to these studies Ritter *et al.* (1978), Mitrus (2003) and Czeszczewik (2004) reported higher breeding success in tree cavities than nest boxes. While other studies have not reported any effect of nest box on nesting success Johnson and Kermott (1994), Miller (2002).

In our observation we predict survivor rate might be 60% as three nestling / fledglings were hatched and disappear in a set pattern i.e. on 25th, 26th and 27th may 2015. It was also the sequence of egg laying. but we could see only the last hatching which flown away in front of us.

On the 9th may 2015 in all we found 5 eggs in the nest and as the day passed they were watched by some intruders. The activity of intruders was increased throughout the development period. After the hatching no egg shell was present neither in the nest nor in the surrounding. Some of the chicks were also missing subsequently. As on the last day on 27th may only one fledgling was seen with the proper growth and finally either preyed or flew away.

Chronology of breeding cycle of Magpie robin in Tarapur, Palghar

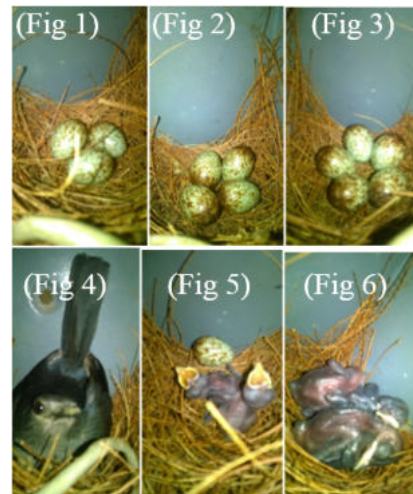
Sr. no.	Date	Observation at nest site
1.	1/5/2015	3 eggs were seen in nest. (Fig 1)
2.	3/5/2015	4 eggs were seen in the nest. (Fig 2)
3.	4/5/2015	5 eggs with brown spotted at base. (Fig 3)
4.	6/5/2015	All eggs were positioned close to each other.
5.	8/5/2015	4 eggs were together and one was slightly away.
6.	9/5/2015	All pointed end of the eggs were at one side.
7.	11/5/2015	Incubation was going on. (Fig 4)
8.	12/5/2015	4 eggs were present and one was missing.
9.	13/5/2015	Bird changed the position of the eggs.
10.	14/5/2015	2 eggs –hatched, 1 unhatched 1 egg was missing. Chick with red black colour. With no feathers on the body.(Fig 5)
11.	15/5/2015	3 rd eggs hatched.
12.	16/5/2015	All the chicks / hatchlings were looking alike. (Fig 6)
13.	18/5/2015	Started low voice call and Slight development of feather
14.	19/5/2015	Development of broad beak and wing feathers
15.	20/5/2015	Development of feather on all body.
16.	21/5/2015	Started opening of eye.
17.	22/5/2015	Development of more feathers on all body with proper length
18.	23/5/2015	Coloration of feathers.
19.	25/5/2015	Looking like parent and one chick was missing.
20.	26/5/2015	It looks like adult with small tail feather.(morning)
21.	26/5/2015	In evening one more chick was missing from nest.
22.	27/5/2015	Empty nest.

Conclusion

In this study we found the hatching rate of Oriental magpie-robin was 60 % and the survival rate was 20% as could be seen from the

health of fledglings and also the activity of the intruders. Female took the lion share in incubation and also nurturing the fledglings. Both parents took the responsibility of defending the territory. We also found the habitat destruction and intruders activity in controlling the population of Oriental Magpie-Robin.

Pictures to show the development of the Oriental Magpie-Robin (*Copsychus saularis*)



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