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SHORT COMMUNICATION

STUDY OF NESTING BEHAVIOUR OF ASIAN PARADISE FLYCATCHER *TERPSIPHONE PARADISI* (AVES: PASSERIFORMES: MONORCHIDAE) FROM SOUTHERN WEST BENGAL, INDIA

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STUDY OF NESTING BEHAVIOUR OF ASIAN PARADISE FLYCATCHER *TERPSIPHONE PARADISI* (AVES: PASSERIFORMES: MONORCHIDAE) FROM SOUTHERN WEST BENGAL, INDIA

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Abstract: The Asian Paradise Flycatcher has always been a flamboyant passerine to be photographed quite often throughout the Gangetic Bengal in India, but hardly any behavioural documentation is enlisted till date. The nesting behaviour of the subject bird encompassing its parental behaviours was studied on a wetland stretch of Ishapore, southern Gangetic Bengal. The present study mainly deals with the nesting behaviour, incubation activities, hatching, and parental care to fledging of a wild pair. The behavioural changes at par with the changing weather conditions and the neighbouring species too were studied.

Keywords: Barti Beel, behaviour, brooding, courting, fledging, hatching, incubation, Ishapore, parental care, Passeriformes.

The Asian Paradise Flycatcher *Terpsiphone paradisi* is a medium-sized passerine bird that inhabits forests and well-wooded habitats in different parts of Asia. It is a widespread resident in the Indian subcontinent and migrates seasonally. In West Bengal State in India, however, the species is a summer visitor (Grimmett et al. 2011; Rasmussen & Anderton 2012). Asian Paradise Flycatcher exhibits sexual dimorphism. Breeding pairs are monogamous. Being socially monogamous, both male and female take part in nest-building, incubation,

brooding, and feeding of the young (Mizuta & Yamagishi 1998). It is relatively robust to habitat loss, evident from its appearance in forest edges and urban green spaces. Combined with its extraordinarily widespread distribution, it is not locally nor globally threatened and is currently rated as Least Concern (LC) by the International Union for the Conservation of Nature (IUCN 2019). Studies on the courtship, nesting, and feeding behaviour are available sparsely (Mizuta & Yamagishi 1998; Gokula & Vijayan 2003). Many sightings of this passerine variety were noted throughout the state but no information on its biology, ecology, or behaviour is available from the lower Gangetic plain despite a good number of photographic records. The present work aimed to study the behavioural aspects of the Asian Paradise Flycatcher in relation with courtship, nesting, and parental care from the southern part of West Bengal.

Study site

The study area was located near a wetland named Barti Beel (Bengali: lake; 22.782°N & 88.391°E) in Ishapore, North 24 Parganas, West Bengal. It is an

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isolated place with very less human activities or disturbances. The forest covered a long range of mostly bamboo vegetation, with mango and guava trees lining a narrow mud path. Agricultural fields, ponds, and the wetland area are flooded during the monsoon.

Behaviour study

Observations were carried out from 05 June to 19 July 2017 on a single nest. The observations were made from a safe hide-out with proper camouflaged clothing and ambience. A considerable distance from the nest was maintained to avoid disturbances during observation. A pair of Olympus 8×40 DPS I binoculars and Nikon Coolpix P600 camera was used for documentation. Tree and nest heights and distances were measured by TruPulse 300 laser range finder. The girth of the tree at chest height was measured using a measuring tape. The birds were not marked, the size of the clutch was not measured, the and nest was not touched or brought down for measurement purposes even after being deserted by birds as chances remained for another couple to use the same.

RESULTS AND DISCUSSION

The nest was built at a height of 4.15m in the branch of a Mango Tree *Mangifera indica* (height 6.35m, girth 179cm). The nest was chiefly made with twigs and spider webs on the end of a short branch. The nest was located on the third day of the observation period (Table 1). Initially, due to the height at which the nest was located and the tendency of the observers to not disturb the ambience and the condition of the nest, it was not approached directly. Hence, the presence

of eggs was not confirmed in one go. A safe hideout at a distant bush resulted in locating/recording the repeated visits of the couple to the nest, with alternate (mostly, the female was engaged in the incubation process) intervals of sitting (assumed to be incubating the eggs), which confirmed the presence of eggs in the nest, though the number could not be confirmed then. Being socially monogamous, both male and female took part in nest-building, incubation, brooding, and feeding of the young. A sudden heavy rain on the 11th day of the observation period showed the fact that both the parents guarded the nest sitting at its edges spreading their wings. A stroll along the circumferential area where the nest was spotted confirmed the presence of nests of a few other species, namely Lineated Barbet *Megalaima lineate*, Coppersmith Barbet *M. haemacephala*, and Black-hooded Oriole *Oriolus xanthornus*. On the 27th day of the observation period, the peeping of a chick was observed inside the nest. The act of feeding the juvenile by the parents in alteration, mostly again by the female, facilitated the documentation. Right after six days (i.e., on the 33rd day of the observation period) from the first observation of the chick, two more chicks were observed inside. Since the nest was not hampered or no attempt was made to have an eye-level view of the nesting, the exact clutch size could not be determined; however, the number of chicks (here, three in number) could possibly give an overview of the same. The feeding behaviour was observed prior to fledging, even when the chicks were capable of coming out of the nest to the nearby twigs/branches. Feeding mostly comprised of ants, small insects, and damselflies torn into parts.

The breeding season of the species lasts from May to

Table 1. Chronology of the breeding cycle of Asian Paradise Flycatcher at Barti Beel in West Bengal, India.

Date	Day in the observation period	Observation at nest site
05.vi.2017	1	Three to four Asian Paradise Flycatcher (rufous) seen in the study area.
07.vi.2017	3	Nest was found.
12.vi.2017	8	Repeated attending of both the parent to the nest confirmed the presence of eggs.
14.vi.2017	10	Incubation was done by both the parents, the female being a bit more regular.
15.vi.2017	11	A sudden heavy rain showed the fact that both parents guarded the nest sitting at the edges spreading their wings.
18.vi.2017	14	Nests of Lineated Barbet, Coppersmith Barbet, and Black-hooded Oriole were observed in the circumferential reach of the studied spot.
01.vii.2017	27	One chick was observed.
04.vii.2017	30	Feeding mostly comprised of ants, small insects, and damselfly parts.
05.vii.2017	31	Both the parents were observed in the affair of feeding.
07.vii.2017	33	Two more chicks were observed peeping.
19.vii.2017	45	Feeding behaviour was observed prior to fledging, even when the chicks were capable to come out of the nest to nearby twigs/branches.



Image 1. Asian Paradise Flycatchers observed at Barti Beel in West Bengal, India: A - the female parent visiting the nest, perching on the brim of the nest | B - female parent observed sitting inside the nest, incubating the egg(s) | C - peeping of a chick | D - peeping of two more chicks | E - feeding of insects, damselflies, and larvae torn apart by the parent birds (mostly female) to the chicks | F & G - a young bird that recently fledged but is still dependent upon parental care for feeding | H - the onset of the colouration of the feathers on the sub-adult bird, confirming its rufous morph | I - the newly attained adulthood of the bird. © Nilemesh Das.

July; in this study, it started in June and ended by the end of July. The incubation period lasts 14–16 days and the nestling period 9–12 days (Mizuta & Yamagishi 1998), though our study recorded 23–26 days of incubation. Three eggs were laid in the neat cup nest on the end of a low branch. Chicks hatched in about 21–23 days.

In general, most of the studies showed lower breeding success in tree cavities compared to nest boxes (van Balen et al. 1982; Nilsson 1986; East & Perrins 1988; Alatalo et al. 1990; Lundberg & Alatalo 1992). Contrary to these studies, Mitrus (2003) and Czeszczewik (2004) reported higher breeding success in tree cavities than in nest boxes. In our study, reproductive success was 100% as we could observe the juveniles grow up to their adulthood and hovering around, though further such documentation or spotting was not carried out.

The site selection for nesting plays a crucial role in the success of the progeny. Nests built in the close proximity of a breeding pair of predatory birds like treepies and drongos often results in a significant reproductive success, where predation poses one of the major threats to the chicks (Nolan 1963; Ricklefs 1969). In our study, the nestlings of Lineated Barbet and Coppersmith Barbet pairs were seen at an approximate circumference of 60m and that of a Black-hooded Oriole at about 150m.

The breeding season for the non-migratory subspecies *affinis* is March–July, while for the migratory species *incei* it is May–July. Males are highly territorial and do not tolerate intruders. Breeding pairs are monogamous and the nest is built together but mainly by the female, who lays three to four eggs in the nest (Mizuta & Yamagishi 1998). In our study, however, we found that though both the parents were involved in nest-making, the feeding part was mostly carried out by the female, with the intervention of the male occasionally. During a sudden torrential rain, both the parents were seen guarding the nest and the chicks with their wings wide open.

The Asian Paradise Flycatcher primarily consumes small winged insects such as flies, bugs, and beetles, but is known to occasionally feed on spiders as well as larger insects such as Praying Mantises, moths, and butterflies by battering them to death and consuming the thorax

and abdomen (Gokula & Vijayan 2003). The present study observed a similar set of pieces of damselflies, ants, and larvae being fed to the chicks by the parent birds. The birds usually perch high on a shade-covered branch, sallying out to catch insects on the wing and returning to the perch to consume them, often singly or in pairs (del Hoyo et al. 2006). Here, the nest was constructed on a twig which was about 50% shade-covered, with the parent birds perching on the edges of the brim of the nest.

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