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# On the breeding of Lesser Fish-Eagle *Ichthyophaga humilis* in Cauvery Wildlife Sanctuary, Karnataka

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## Introduction

Historically the Lesser Fish-Eagle *Ichthyophaga humilis* has been known to occur only in the Himalayan foothills, and north-eastern India, where it is a breeding resident (Ali & Ripley 1987; Rasmussen & Anderton 2005). However, there have been a few recent sight reports and photographs from riverine habitats in southern India since 2004 (Lethaby 2005; unpublished, online reports in the [bngbirds](http://groups.yahoo.com/group/bngbirds/) (<http://groups.yahoo.com/group/bngbirds/>) & [keralabirder](http://tech.groups.yahoo.com/group/keralabirder/) (<http://tech.groups.yahoo.com/group/keralabirder/>) egroups (see References). Little information exists about the distribution and habitats of Lesser Fish-Eagle in southern India, except for the infrequent sightings by bird watchers. One of its favourite haunts seemed to be the Cauvery River, along its stretch from Ranganathittu till about Hogenekkal, where it has been spotted at several places like Ranganathittu, Muthathi, Bheemeshwari, Doddamakali, and Galibore, some of these locations falling within Cauvery Wildlife Sanctuary. The species has been recorded from this region throughout the year.

In this note, we present observations made over a period of eight weeks, at Cauvery Wildlife Sanctuary, on perhaps the first nesting incidence of this species in Karnataka, and possibly the second from peninsular India. The first nesting record from

this latter region was in March 2009 from Shendurney Wildlife Sanctuary, Kerala (Sashikumar *pers. comm.* June 2009). We also record an instance of fishing by Lesser Fish-Eagle.

## Discovery of the nest

On 7 June 2009, while watching birds near Bheemeshwari, in Cauvery Wildlife Sanctuary, around 1625 hrs, we (DK, SH, &VD) noticed a raptor perched on the topmost branch of a dead tree. Its back was towards us, and we had a clear view of its all-dark tail; we easily identified it as an adult Lesser Fish-Eagle. The raptor suddenly became alert and assumed an aggressive posture when a Brahminy Kite *Haliastur indus* soared above it. As soon as the kite went out of the view, the fish-eagle seemed more relaxed on its perch. When the kite reappeared, the fish-eagle took-off in a flash, raced after the intruder and chased it for some distance. It circled a few times over the area before disappearing towards the riverside. This typically 'aggressive' behaviour suggested a possible nest in the vicinity, and after a few minutes of searching, the nest was located. An adult fish-eagle was sitting in the nest, feeding a single chick! The adult was tearing off small pieces of food and feeding the chick. Based on the photographs, the age of the chick was approximated to be six weeks (Fig. 1).



Fig. 1. Six-week old juvenile Lesser Fish-Eagle *I. humilis*.

## Methodology

Due to practical constraints, continuous monitoring of the nest was not possible, but visits to the nest site were planned at least once a week in the morning or evening during subsequent weeks through July 2009, amounting to 13 field visits with 32 hours of field observation. The monitoring of the nest and the nesting tree was done from two locations.

1. About 40 m away from the nest from the side of the road, and
2. From the riverbank, from where movements of the adults were visible, but the nest was not visible.

For observations we used 10x50 binoculars and 30x50 spotting scope. Digital SLR cameras were used to photograph the nest, chick, and adult birds. We did not want to disturb the nesting pair and so did not construct a hide; ensuring that observations were made from a distance of at least 40 m away from the nesting tree. A concise summary of our observations is presented in **Table 1**.

## Details of nest

The nest was 15 m above the ground, in the "Y" fork formed by a branch emerging from the main trunk of a large Arjun tree *Terminalia arjuna* (c. 20–25 m in height) on the banks of Cauvery River. The tree was situated in the forest between a motorable road and the river, approximately 30 m from the road and 10 m from the riverbank. The nest was well hidden and not easily visible from the road or the river. It was built mainly with sticks, and seemed to be about 2 m in diameter and 1 m deep. On 17 June 2009 we noticed that a side of the nest was lost in heavy rains, but the base of the nest was still solid and stable. In spite of the loss, the chick still had enough room to move around the nest.

Once we photographed a piece of blue plastic sheet in the nest (**Fig. 2**). Its purpose was not clear to us and was not seen in the next visit in the nest. The nest always contained ants (? *Camponotus* sp; checked through the scope, and at the base of the tree) and a good amount of time was spent by both adult and chick picking up these ants from the nest and occasionally off the body and throwing them away!



Fig. 2. A rare family portrait (note the plastic sheet in the nest).

One instance of disturbance to the nest was noted, from a troop of bonnet macaque *Macaca radiata*. The troop was passing through the nesting tree and a few primates approached the nest. The chick was in the nest and the female was sitting on a branch near the nest. The female and the chick adopted aggressive postures with open wings (but without calling). The monkeys stopped momentarily and continued at their own pace, moving away from the vicinity of the nest.

Two instances of interaction with other bird species were noted. Once, the chick was alone in the nest and a Common Myna *Acridotheres tristis* came near the nest. The chick called aloud, but neither its parents, who were sitting in the same tree, nor the myna reacted to the same! In the second instance a Brahminy Kite, which flew over the nesting tree, was chased away by the male.

## Behaviour of parents and chick

The difference in size of adult birds was quite discernable in the field, and as it is well accepted that female eagles are considerably larger, the bigger bird is henceforth referred to as the female and the smaller one as male.

Some further general observations on behaviour of parent birds are noted below:

Once we observed the male calling around the nesting area and female left the nest a few minutes later. While in the nest, female was heard calling out aloud and the male was heard responding to the same, sometimes even from far away. The adult birds called whenever they approached the nest. During most of our evening (1730 hrs) observations, the adult birds were seen coming down to the riverbank and drinking water (**Fig. 3**). The adult was also observed taking an alert position on the nest on hearing loud or continuous honking of vehicles on the road, or loud shouts of tourists, but the bird never left the nest due to such disturbances.

**Table 1.** Summary of observations

Approx. age of chick	Date 2009	#Hrs observed	Behaviour of adults; food & feeding pattern	Chick plumage	Chick behaviour	Notes / Observers
6 wk	7 June	1.0	M brought & dropped food in N, then remained near N tree. Responded vocally to F's calls. F mostly in the N feeding, resting, preening, stretching, picking ants, repairing / rearranging leaves / twigs in N. Fed the chick small pieces. Also ate itself in between feeding and later the leftovers. Occasionally called from N. A few times, both parents remained on the N for a few minutes after the M brought food.	Bare head, neck pale grey-brown. Wing pale brown with white blotches / spots. Chest, belly, flanks, under-tail coverts dirty white. Tail very short, blackish. Primaries reaching tip of tail. Rump, back white. Iris dark.	Always in the N. Mostly squatting but sometimes stood while fed. No calls.	VD, DK, SH
	10 June	2.0				
	13 June	4.0				
7 wk	17 June	2.0	Same as above. F occasionally left the N for few hours.	Similar to above, but plumage became 'neater.'	Major activities were resting, feeding, and preening. Walked in the N, stretched wings.	A corner of the N destroyed in heavy rains. But no damage to the central area. DR, SK
8 wk	23 June	3.0	Sometimes fed the chick. Few times, dropped food in the N and did not feed.	Fully feathered. Upper wing darker brown. Upper wing coverts with paler brown edges. Head, chest, upper belly, and flanks dirty pale grey-brown, with paler throat. Lower belly and under tail coverts white. Tail dark with a pale brown base and a darker sub-terminal band. The tip of the tail white. From a distance, flight feathers appeared dark below contrasting with paler whitish under-wing coverts with brown mottling (Fig. 5).	Trying to eat by itself, mostly for small duration. Later fed by parents. Made weak moaning calls. Activities include resting, preening, eating, and walking in N. Occasionally flapped wings, jumped, picked up ants from the N and itself, and bit leaves and branches overhanging N. Wagged tail while preening / standing. Excreted out of the N.	N had a blue coloured plastic sheet. DR, SK, MK, DK, RAK
	24 June	2.5	Adults came to N only for feeding chick, otherwise stayed near N tree. Responded to calls from chick even if away from N.			
9 wk	28 June	6.0	Same behaviour as in previous weeks.	Similar to above, getting neater.	Ate by itself, but struggling to tear the food at times.	When Common Myna came near the N, chick called aloud, but both parents and Myna ignored the call! The F and the chick adopted aggressive postures with open wings when a group of bonnet macaques came near the N. DR, SK, MK, DK, RAK
	2 July	2.0			Other activities similar to above.	
	4 July	3.0				
10 wk	8 July	1.0	Same behaviour as in previous weeks.	Body proportions resembles adult. Plumage getting tidier and more like an adult.	Ate comfortably by itself. Hopped between branches in the N tree, flapping wings.	DR
11 wk	12 July	2.5	Seen landing in N.	Plumage getting tidier and more adult like.	Mostly not seen in N, but on or near the N tree. Seen landing in N but exited soon.	DR
12 wk	15 July	2.5	Seen near N tree.	Same as above.	Flies comfortably. Seen near the N tree. Once seen in the N.	DR, PHL, VD
	26 July	0.5				

**Abbreviations:** F=female; M=male; N=nest. DK= Dipu Karuthedathu; DR= Dinesh Ramarao; MK=Mohanram K.; PHL= Prakash H. L.; RAK= Raju A. K.; SH= Sreekumar H.; SK= Srikanth Kumar; VD= Vinay Das.

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Fig. 3. The pair at the evening ritual of drinking from the river.

## Food and feeding habits

Other than fish, no other food was seen brought to the nest.

During the first and second week of observation, the food was torn to very small pieces by the female and fed to the chick. The longest feeding session observed was one in which 75–80 such small pieces were given with few small intermittent breaks (feeding session was from 0750 hrs to 0945 hrs). Later in the day, smaller sessions in which 45–50 pieces were fed were observed. The normal pace of eating was observed to be around 5–6 pieces a minute during active feeding sessions, with pace of eating being reduced when chick was satiated or disturbed. During feeding when some pieces fell in the nest during transfer, they were immediately picked up and re-fed to the chick.

On 4 July 2009, we watched an adult fishing at 1730 hrs. Both birds flew from the nesting tree, crossed the river, and perched among the leaves of a tree on the opposite bank. After some time, one of the birds (presumably the male) took off and landed in the shallow water near the perching tree. The bird stayed in water for few minutes, grasping a fish (c. 30 cm long) in its talons, and then hopped on to the sand with the fish (Fig. 4). After a few minutes it took off with the fish and landed on a tree nearby, with the fish held in its claws. Then it flew with the fish towards the nesting tree. Thirty minutes later it came to the nest, dropped the fish in it, and immediately left. The female arrived 20 min later, fed the chick, and ate the remainder herself—we could not estimate roughly the proportion of food shared between parent and chick, due to poor visibility.

Throughout the observation period, the female ate the remaining food once the chick had its fill. On some occasions, the female was seen eating part of the food in between feeding the chick. Whenever the chick showed no interest in the offered food, the female ate the same. However, once during the second week of observation, when the chick was distracted from feeding by passing cattle, the adult waited with the food in its beak till the cattle passed on, after which the chick resumed feeding. Curiously, after eating, the female was observed to move the head side-to-side almost as if rotating its head!

## Summary

Breeding of Lesser Fish-Eagle has been studied in the Himalayan foothills (Naoroji 2006), but the present paper is the first detailed observation at a nest from peninsular India. The nest site selection and nest position agreed with earlier observations (Naoroji 2006). In the earlier studies from Himalayas, the nesting was always unsuccessful and nestling stage was never documented. The observations in our study indicate the following aspects of this stage (based on approximate age of the chick):

- For the first seven weeks, the parents exclusively feed the chick. It took around nine weeks before the chick ate by itself comfortably. The chick is able to fly when it is twelve weeks old.
- Female stays in the nest and mostly takes care of feeding the chick. She eats in the nest while feeding the chick.
- Male gathers food and drops it in the nest and stays in the vicinity of the nest.
- Other than the damage due to heavy rains, no other threats to the nest was observed.
- Observations in 2010 indicated that the nest was not reused the next year.

Lesser Fish-Eagle is a species dependent on linear habitats only in wooded habitats along large perennial river systems. It has been classified as Near Threatened by IUCN due to its small and declining range. The selection of the nest site very close to the river indicates its strong habitat preference during its breeding season. However, it is noteworthy that the nest was selected near an arterial road inside the sanctuary where human presence and tourism activities were a norm. This indicates that the species can tolerate moderate disturbances even during its breeding. The successful breeding of Lesser Fish-Eagle from southern India is quite significant in terms of local ornithological interest and conservation as it expands the known breeding range of this threatened species into the riverine forests of southern India. Despite practical limitations on continuous monitoring, a good amount of plumage variations of the chick could be studied during this period.

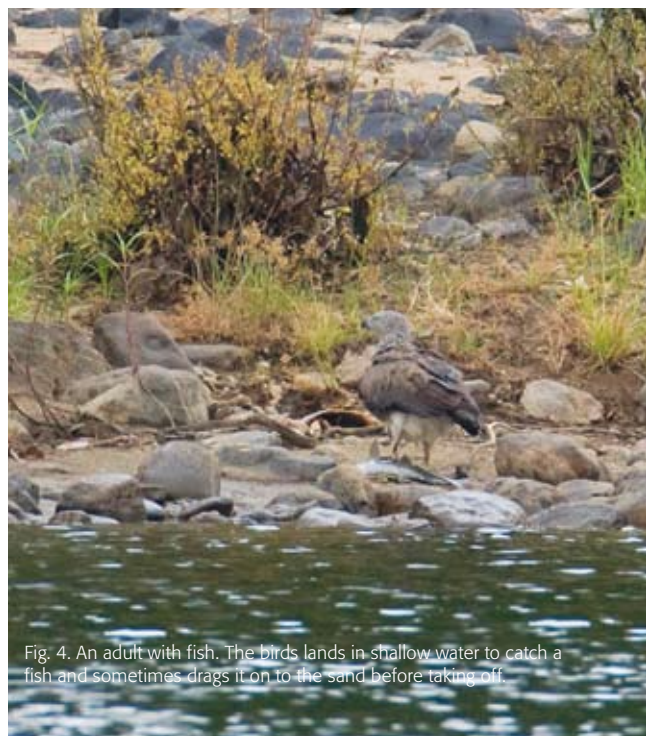


Fig. 4. An adult with fish. The bird lands in shallow water to catch a fish and sometimes drags it on to the sand before taking off.

Mohammed K.



Dinesh Ramarao

Fig. 5. Eight-week old juvenile.

It is worth mentioning that on 7 March 2010, in the same area, a total of six Lesser Fish-Eagles were observed soaring on a single day, indicating a good population in the surrounding areas. With increasing reports of Lesser Fish-Eagle from other parts of peninsular India, it is likely that more nests could be discovered in suitable areas. With sightings and now breeding of Lesser Fish-Eagle from areas that were predominantly believed to be falling in the range of Grey-headed Fish-Eagle (Lott 1989) – the status of the latter in southern India is becoming further unclear.

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