

Diet composition of Brown Fish-Owl in Tiruchirappalli District, Tamil Nadu, India

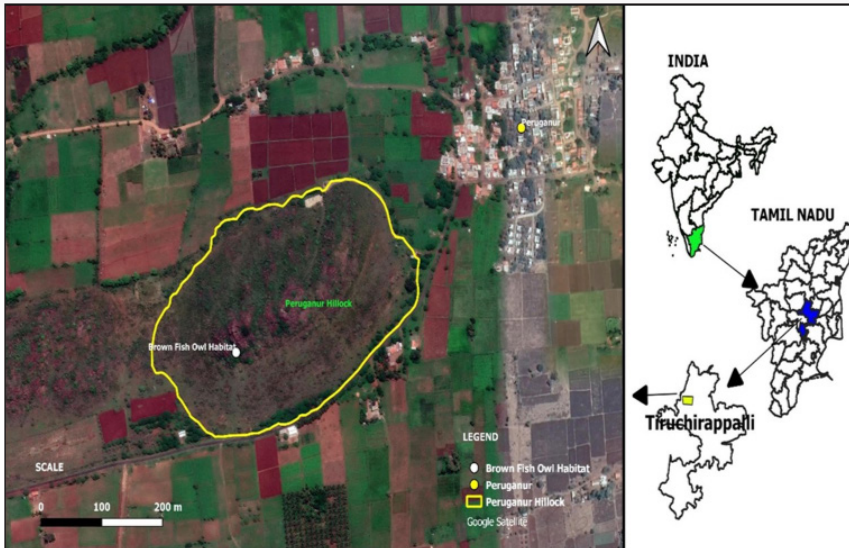
In India, 36 species of owls are recorded (Praveen et al. 2021) and among them, 15 species are from Tamil Nadu (Ali & Ripley 1983; Grimmett et al. 2011; Jayson & Sivaram 2009). The local name of the Brown Fish-Owl is *Booman Anthai* (Tamil) (Ali & Ripley 1983). The Brown Fish-Owl *Ketupa zeylonensis* is a resident owl and occurs in the Indian Subcontinent. It is mostly seen in lowlands, streamside, lakeside woods, thickets, villages, groves, and open forests. This owl is semi-diurnal, roosting in large trees during the daytime and leaving well before sunset. Nests are built in hollows or depressions in trees, rock ledges or steep stream banks, normally near water. The clutch size is typically two. Published information on Brown Fish-Owl on various aspects by researchers in India is limited to a few geographical regions, viz., feeding on Little Cormorant in Rajasthan (Thakur & Kray 2015), notes on the breeding of Brown Fish-Owl from Jambughoda



Brown Fish Owl roosting on a tree. © T. Siva.



Habitat of Brown Fish-Owl at Peruganur hillock. © T. Siva.



Brown Fish Owl location map.



Broken and scattered non-rodent pellet observed and collected from underneath of roosting site of a Brown Fish-Owl. © T. Siva.

Wildlife Sanctuary, Gujarat (Vyas et al. 2013), observation on the breeding from Kerala (Bindu & Balakrishnan 2015). To date, there is no published information about the diet aspects on this owl from Tamil Nadu. The present study was conducted to document the prey intake of Brown Fish-Owl

from hillock (small hill) habitats of Musiri Taluk, Tiruchirappalli District, Tamil Nadu.

The present study was conducted in the Peruganur Village of Musiri Taluk in Tiruchirappalli District, Tamil Nadu, India. The Brown Fish-Owl was observed from the

Peruganur hillock. The total area of the Peruganur hillock is 9.57 ha. In this study area, one pair of Brown Fish-Owls were studied. During the survey, GPS locations of the identified nest/roost sites were recorded with the help of Garmin etrex 20 GPS device (11.1166 N, 78.4154 E).

Owl pellets are in general accumulations of the undigested portions of prey that are regurgitated and ejected through the mouth in compact units. Owl pellet analysis serves as a non-destructive means of diet determination. The regurgitated pellets were collected from a pair of Brown Fish-Owls in Peruganur hillock every week from October 2020 to February 2021. They were collected separately during each visit and placed them in plastic bags. The pellets were kept at 70°C in a hot air oven for 24 hours to kill the associated invertebrates (Siva et al. 2019). The diet composition of the Brown Fish-Owl was studied by the analysis of materials found in the pellets. The regurgitated pellets were placed in the 8% (by weight) sodium hydroxide

Table: Prey composition of Brown Fish-Owl.

Month and year		October 2020	November 2020	December 2020	January 2021	February 2021	Total	Percentage
Prey species / Total number of pellets collected		22	16	22	19	29	108	
Invertebrates								
1	Rhinoceros Beetle <i>Oryctes rhinoceros</i>	6	6	2	3	5	22	14.47
2	Wind or Sun Spider <i>Galeodius indicus</i>	0	0	0	1	0	1	0.66
3	Crab sp.	1	0	3	2	1	7	4.61
Vertebrates								
4	Amphibians	20	15	21	14	23	93	61.18
5	Reptiles	4	2	0	1	3	10	6.58
6	Lesser Bandicoot Rat <i>Bandicota bengalensis</i>	0	1	2	1	3	7	4.61
7	Indian Soft-furred Rat <i>Millardia meltada</i>	2	0	0	2	0	4	2.63
8	Little Indian Field Mouse <i>Mus booduga</i>	0	0	0	1	0	1	0.66
9	Indian Gerbil <i>Tatera indica</i>	0	0	0	0	1	1	0.66
10	Unidentified Rodents	1	1	0	1	3	6	3.95
Total		34	25	28	26	39	152	100

(NaOH) solution, individually, in separate washing cups as suggested by Siva et al. (2019). The 8% NaOH solution was then carefully decanted by using a filter and the osteous/ chitinous remains were collected, oven-dried at 60°C, labelled, bagged and preserved for prey species identification.

The skull, cranial bones and dentary bones were used to identify the small mammalian prey. Among the pellet contents, the lower jaws were selected as keys for the identification of prey species as they occurred in most of the pellets and differed morphologically among rodent species (Neelananarayanan et al. 1998; Talmale & Pradhan 2009). One pair of the mandible of a rodent species was recorded as one prey.

The other prey items were identified based on the osteous and chitinous arthropod remains (Taylor 1994). In the absence of mandibles, other bones like skulls, limb bones, pectoral and pelvic girdles were useful, especially for identifying and quantifying the mammalian, reptilian and amphibian prey (Neelananarayanan et al. 1998; Talmale & Pradhan 2009). The Rhinoceros Beetles were identified by using their chitin remains in the analysed pellets. A hand lens or low power binocular microscope was employed to identify arthropod exoskeletons (Marti 1987).

A total of 108 pellets were collected during October 2020 to February 2021. The number of pellets collected varied every month. The

intactness of the pellets is perhaps due to the hair present in the rodent prey. It was observed in the present study, if these owls consume non-rodent prey, the fallen pellets are often found broken and scattered under the nest/roosting sites.

The analysis of 108 pellets resulted in 152 prey items. The percentage of prey composition was to the tune of 14.47% for Rhinoceros Beetles *Oryctes rhinoceros*, 0.66% for Sun Spider *Galeodes indicus*, 4.61% for crab species. The vertebrate prey species was to the tune of 61.18% for amphibians, 6.58% for reptiles, 4.61% Lesser Bandicoot Rat *Bandicota bengalensis*, 2.63% for Indian Soft-furred Rat *Millardia meltada*, 0.66% for Little Indian Field Mouse *Mus booduga*, 0.66% for Indian Gerbil *Tatera indica* and 3.95% for unidentified rodent species. Further, it is apparent from the results that in terms of the frequency and proportion that amphibians dominated in the owl's diet followed by Rhinoceros Beetle *O. rhinoceros* and reptiles. In the present study, no fish prey were found in the diet of this bird as there were no water in the water bodies during the study period.

Analysis of regurgitated pellets revealed presence of small mammals such as rodent prey included *Bandicota bengalensis*, *Millardia meltada*, *Mus booduga*, and *Tatera indica*. All these four species of rodents were already reported by Neelananarayanan et al. (1996) and Neelananarayanan (1997). Another prey item Rhinoceros Beetle is a major pest of coconut palm trees. This study indicates that the Brown Fish-Owls are natural predators of amphibians,

rodents and insects. The results of the present investigation are following the findings of Rasmussen & Anderton (2012) wherein they reported that the diet of this owl is composed of mainly fish, frogs, freshwater crabs and occasionally rodents, reptiles and birds. Further, according to Holt et al. (2016) this owl hunts from perches overlooking the water from where it swoops down and seizes prey from the water.

Conclusion

Based on the findings of the present study, the Brown Fish-Owl can be viewed as an important predator of amphibians, rhinoceros beetles, reptiles, and rodents.

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