

## Diet Composition of Brown-Fish Owl (*Ketupa zeylonensis*) from Melghat Tiger Reserve, India

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**Abstract:** The diet of the Brown-fish Owl (*Ketupa zeylonensis*) was studied for the first time in the forest habitat of Melghat Tiger Reserve, Maharashtra, India, from October to November 2013. Regurgitated pellets were analyzed to understand the dietary composition. The diet mainly comprised of Crab species such as *Barytelphusa cunicularis* (62.5%) and *Barytelphusa guerini* (37.5%), Mammals such as *Suncus murinus*, *Rattus rattus* and family Muridae species were also found along with a single unknown fish species, the di *et also* showed the presence of insects like Coleopterans and Orthopterans.

**Key words:** Brown-Fish Owl • Melghat Tiger Reserve • Diet Composition • Owl Pellet • Owl Prey

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### INTRODUCTION

Brown-fish Owl (*Ketupa zeylonensis*) is a resident owl and occurs in Subcontinent south of Himalayas from Northwest Pakistan and East Sind to Assam, lower parts of South Assam Hills (Khasi Hills), East Meghalaya, Cachar and Lushai Hills at least), Bangladesh and south through Peninsula to Sri Lanka. It mostly occurs in lowlands, common in streamside or lakeside woods, thickets, villages, Groves and open forests. (Middle East, South China and Southeast Asia). It eats a variety of prey, including fish (Preyed from near water surface), frogs, crabs and occasionally rodents, reptiles and birds [1]. Their ability to digest bone is poor and pellets contain a good skeletal record of the prey consumed.

Owl pellets are accumulations of the undigested portions of prey which are regurgitated and ejected through the mouth in compact units. Owl pellet analysis serves two primary purposes. Foremost, pellet analysis serves as a nondestructive means of diet determination. Obtained diet information can include prey species eaten [2-9], preferences of prey species [10-12] and estimates of contributions of prey biomass. Owl pellet analysis also is a useful method for gaining additional insight into small mammal communities and distribution [12-15,18].

Up till now, no study has been reported on the diet composition of the Brown-fish Owl. Hence the present study was carried out to document the information about the prey preferences of Brown-fish Owl from the Melghat Tiger reserve.

### MATERIALS AND METHODS

The present study was carried out in Melghat Tiger Reserve (MTR), Vidarbha, Maharashtra which lies between 21°29.96'N and 077°12.338'E coordinates. MTR is located at southern offshoot of Satpuda hill range in Central India also called as Gawilgarh hill range in Maharashtra. The forest area of MTR is tropical dry deciduous, dominated with teak plantations (*Tectona grandis*).

Pellets of the Brown-fish Owl were collected from the following sites: Alkund site in Jarida Range of Melghat tiger reserve (1), Site Near Semadoh Village (2) and Site Near Semadoh Tourist plaza (3). All the sites were in close vicinity to water bodies. Pellets were collected during October to November 2013. Due to uncertain rain, pellets were in the broken condition and a total of 8 pellets were collected from following three sites with given GPS locations:

- 1 Alkund site: N 21°33.680' E 077°26.294'.
- 2 Site Near Semadoh Village: N 21°26.240' E 77°17.445'.
- 3 Site Near Semadoh Tourist Plaza: N21°29.518' E 77°15.375'.

the help of their chitinous remnants found in the pellets of Brown-fish Owl.

## RESULTS

Pellets were collected, bagged and kept in an oven at 70° for 24 h in order to kill infesting insects and then stored. Later, the pellets were subjected to NaOH treatment and the osseous and chitinous pellet contents were separated and then washed for further identification [16]. Different food remnants like bones, feathers and insect parts were cleaned under a dissecting microscope from a disentangled content of owl pellets.

The regurgitated pellet consisted of crushed crab remnants, hair and small pieces of vertebrate bones. However some of this material was so crushed that it was very difficult to identify the taxa to which they belonged. Crab remnants found in the pellet, formed the basis of crab identification. Vertebrate bones found in the Owl pellet, were used for identification of small mammals. The following taxa of small mammals viz. *Suncus murinus*, *Rattus* sp., family *Muridae* (identified up to family level) could be recorded. The remnants of insects in the pellets of the owl comprised wings, legs, antennae and head. On the basis of these remnants, insects belonging to the orders Orthoptera (Grasshoppers) and Coleoptera (Beetles) were recorded from the pellets (Table 1).

The diet composition of the Brown fish owl was studied by the analysis of materials found in the pellets. The Invertebrate parts which were found in the pellet were confirmed by Scientists from the Zoological Survey of India. The skull, cranial bones and the dentary bones were used to identify the small mammals up to the species level. The identity of small mammals was further confirmed by one of the co-author (Shyamkant S.Talmale). The Insect identification was carried out with

The Shannon's diversity index was found to be 2.0552 and the Evenness index was 0.938, which indicates the food habits of the Brown-fish Owl are more or less generalized (Figure 1.)

Table 1: Prey Frequencies (%) and biomass (%) consumed by Brown-fish Owl from Melghat Tiger Reserve, India

Prey items	% Relative Abundance	% Biomass
<i>Barytelphusa cunicularis</i> (Westwood, 1836)	62.5	26.37
<i>Barytelphusa guerini</i> (H. Milne Edwards, 1853)	37.5	10.19
<i>Barytelphusa</i> sp.	25	6.79
<i>Suncus murinus</i>	25	18.12
<i>Rattus</i> sp.	12.5	27.18
Family Muridae	12.5	9.06
Fish sp.	12.5	2.26
Orthoptera	25	-
Coleoptera	37.5	-

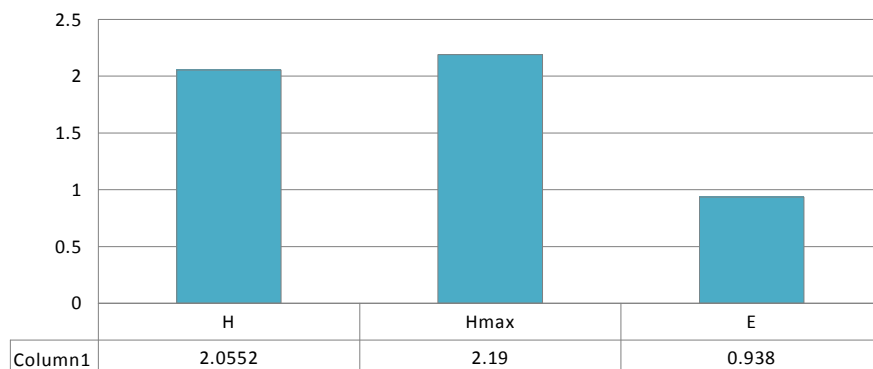


Fig. 1: Prey diversity and Evenness in the diet of Brown-fish Owl. (H-Shannon's Index, Hmax-Maximum diversity possible, E-Evenness)

## DISCUSSION

As the collection of the pellets was done during the end of the rainy season, the pellets were in broken state. Brown-fish Owls generally roost near the water bodies many a times on the branches of trees that are above flowing or stagnant water, thus collection of entire pellets in large number becomes uncertain.

The pellet analysis of Brown-fish Owl showed presence of freshwater crabs as major constituents in the diet. Numerically *Barytelphusa cucicularis* dominated the prey composition (Table 1); also it is observed that it is not a specialist, with a diet composition of approximately half of invertebrates and half vertebrates. The pellet analysis of Brown-fish Owl also showed the presence of insects like Orthopterans and Coleopterans.

In the present study we found the Brown-fish Owl Preyed mainly upon the freshwater crabs, rodents and very low number of fish preys were found in the pellets, this may be due to the fact that Owls are the opportunistic predators and crabs are the easily available prey items during the rainy season and besides as the pellets were collected near small streams so the availability of the fishes might be low. This was according to study carried out by Arnoud [17] which stated that during the first week of July 2009, the owls kept returning to the same tree below the nesting cliff, which made it possible to collect not only a handful of feathers but also 40 legs of freshwater crabs. and days later it was recorded carrying a fish, thus in the present study we also found very less number of fish preys, which is in corroboration with the findings of Arnoud [17].

The pellets were collected in the forest habitat and it was observed in the present work that this raptor shows more generalized food habits (Shannons diversity index-2.05).

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