



## Food and Feeding Ecology of Jungle Babbler, *Turdoides striatus sindianus* (Ticehurst) in District Jammu (J&K), India

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Available online at: [www.isca.in](http://www.isca.in)

Received 20<sup>th</sup> May 2013, revised 3<sup>rd</sup> June 2013, accepted 1<sup>st</sup> July 2013

### Abstract

The present study on food and feeding ecology of Jungle Babbler, *Turdoides striatus sindianus* (Ticehurst) was carried out during June, 2010 to December, 2011 at district Jammu. The study revealed that these babblers have omnivorous feeding habit with insects forming the predominant portion of their diet. Their plant diet included fruits, berries, nectar, figs, seeds and grains. Lifting of dead leaves on ground was found to be the most common strategy applied by these babblers for foraging during present study. Inter and intraspecific struggle for food was recorded at artificial feeding sources like canteens. Moreover, the Jungle Babblers were found to share a sort of communal relationship with their feeding associates.

**Keywords:** Jungle babbler (*Turdoides striatus*), omnivorous, diet, feeding ecology.

### Introduction

Feeding is an essential activity in bird's life which is indispensable for their survival but the demands of food acquisition impose significant challenges to both the physiology and behaviour of birds. The study of feeding ecology is thus imperative for understanding the species ecological adaptation to the environment and is also a crucial factor to be considered while examining their economic status. The Jungle Babbler, *T. striatus* is very widely distributed throughout the Indian subcontinent and divided into five races. These small birds form a complex and stable society and are very social even during breeding. The habit of foraging in small groups that may vary in number from six to ten has earned them the popular names like Seven Sisters or Sath Bhai<sup>1</sup>. These birds occur wherever there are trees and occupy habitats ranging from dry deciduous woodland to moist semi-evergreen forest<sup>2</sup>. Studies regarding feeding of Jungle Babblers have been undertaken by various workers<sup>2-8</sup> in several places in India but no such study has been done in and around Jammu. Therefore, the present work was undertaken to investigate the various aspects of food and feeding of Jungle Babblers in this region.

### Material and Methods

**Study area:** The study was conducted in district Jammu (figure 1) that sprawls on both the banks of picturesque river Tawi, a tributary of river Chenab. Nestled between the Himalayan foothills, the Shivalik ranges and the Indo-Gangetic plains, the Jammu constitutes the south western district of the Jammu and Kashmir state. Bounded by district Udhampur in the north and northeast, Samba district in the east and southeast, Sialkot district of Rawalpindi (Pakistan) in west and Rajouri district and parts of district Bhimber (POK) in the northwest, it covers a geographical area of 3097 sq.km. Geographically, it lies

between 32°27' and 33°30' North latitudes and 74°19' and 75°20' East longitudes. Altitudinally, it extends from 275 to 410 m above the msl. Being situated in the subtropical part, the climatic conditions in and around the study area are sub-humid to arid and characterized by four well marked seasons in a year.

**Methodology:** Present study on feeding ecology of Jungle Babblers (*Turdoides striatus*) was made on 29 groups ranging in size from 4 to 16 individuals. The data was collected during a continuous period of 19 months from June, 2010 to December, 2011. Data was collected from the field by direct observation method and by using binocular (Bushnell 7 X 50 U.S.A. made) whenever found necessary. The observations were made early in the morning or late in the evening when babblers are actively feeding with least disturbance to the birds. Individual groups of Jungle Babblers were followed for periods varying from 2 to 6 hours. While following groups it was usually possible to keep some birds in view at all times, but rarely possible to see all members of the group together. During each scan, observations on the foraging habitat, type of feeding method employed, feeding session, size of the flock, type of diet and association with other bird species were recorded. Seasonal changes in the feeding habits of babblers were studied too.

### Results and Discussion

**Food and Feeding habits:** The Jungle Babbler (*Turdoides striatus sindianus*) is a common resident bird in the study area that live in social groups, the size of which was found to range from 4 to 16 individuals (mean= 9.2 ± 2.12). The members of the groups were seen foraging close together without any conflict and also moved together while criss-crossing different parts of their home range. The movement from one part of the home range to another, a characteristic of many territorial species, was not only for optimization of foraging but also for

patrolling their territories to keep away conspecifics<sup>9</sup>. During breeding season, babblers were often seen foraging singly or in small parties and this also applies to members of the group which were seen feeding nestlings. These gregarious birds spent considerable time searching for food in areas with thick canopy cover, herbaceous ground vegetation, gardens and sometimes open areas very close to dense vegetation. They were also found to be well acclimatized to live in close proximity to man. These babblers being highly adaptive were recorded to feed upon variety of food items which included both animal and plant matter as reported in several other studies<sup>2-8</sup>.

Among animal matter, the main food item consumed by Jungle Babblers included insects like grasshoppers, beetles, ants, bees, wasps, moths, cockroaches, termites, crickets, caterpillars, flies and spiders (table 1). In order to find these insects, they dug around the tree base, edges of the walls and probed holes on the ground. Hopping was their major method of movement during feeding. They also gleaned small insects from the bark by inserting the beak into cracks and crevices present on trees trunks. Besides, they explored the curled up leaves and twines attached to the trees in search of prey. The caterpillars clung to the leaves were sometimes taken by tearing a bit of leaf along with them. Besides, they were found picking up insects from the flowers of trees like *Eucalyptus*, *Callistemon* and also peered beneath the leaves in order to find hibernating larvae.

The various foraging methods employed by these babblers were classified into following categories<sup>10</sup>: i. Hopping and Gliding: This was the most common method used close to the ground to catch grasshoppers and crickets. ii. Lifting of dead leaves: In this method, the birds flicked dead leaves on the ground with their bill so as to reveal the prey residing beneath them. iii. Probing: The birds inserted their bills into curled-up leaves, gaps in the bark and holes present on the tree trunks as well as on ground with the purpose of collecting insects. iv. Peering: The birds twisted their heads to one side and peered under leaves in search of caterpillars. v. Stationary Plucking: The birds hovered over bunches of fruits or berries and plucked them. vi. Among these feeding strategies, lifting of dead leaves was most commonly used for feeding during present study (table 2).

The probable reason for adopting such method may be related to the specific niche utilization of Jungle Babblers as they were mostly seen feeding in areas with closed canopy cover and while doing so, they virtually turned every quarter of the thick litter to find out the insect fauna underneath the dead leaves. During summer and rainy months (breeding season of babblers), the consumption of insects particularly grasshoppers, caterpillars and beetles was more. This was probably due to increased availability of insects and to meet the high energy demands of their breeding activity. Moreover, during this period they were also seen taking plant food like figs, wild berries, seeds of *Casearia elliptica*, fruit of *Morus alba* and *Zizyphus jujube* and nectar of *Bombax ceiba* (Silk cotton tree) (table 1). Grains of rice, wheat, bajra and maize were also consumed. These grains were consumed from the ground and never from

the standing crops. Weed seeds were consumed too but in smaller quantities. Furthermore, they also supplemented their diet with items gleaned from the kitchen premises like chapattis, bread and vegetables throughout the year.

**Feeding associations:** It is generally agreed that mixed flocks can be separated into two components, one being the nuclear species component that includes one or several intra specifically gregarious species<sup>11</sup> and an attendant species component that includes any number of species that regularly join the nuclear species<sup>12</sup>. The bird under present study can be regarded as nuclear species of their respective foraging area as they shared their feeding sites with number of other attendant bird species (table 3). These feeding associates moved along with the babblers or joined the foraging flocks at times. Intra-group aggression among Jungle Babblers was very rarely seen but at artificial feeding sites like canteens and waste-bins where food was very concentrated, some instances of intra as well as interspecific conflicts for leftover food were recorded. In spite of these occasional conflicts between babblers and other species, it was detected that the attendant species get benefitted from the vigilance provided by the sentinel system of these babblers in which one member of the flock perch higher from the ground and scan the surrounding area for predators and alert the foraging conspecifics against any threat by giving alarm calls. The other bird species also respond to their alarm calls and join them in mobbing predators<sup>13,14</sup> stated that when two species have predators in common, they may benefit from responding to each other's alarm call as this allows them to reduce their investment in vigilance behaviour or increase the probability of escaping predators. Thus, it appears that there is a sort of communal relationship between babblers and their feeding associates.

**Variation of food-intake through the day:** Feeding in Jungle Babblers occurs intermittently throughout the day. The intensity of food-intake gets accelerated from the awakening and then gradually slows down. During hot summer days, they start feeding in early hours (0530 to 0600 hours) but during cold days, it starts as late as 0730 hours whereas during monsoon season they feed at irregular times depending upon the down pour. After feeding actively in morning hours they rest and preen sporadically with peak during mid-day. The intensity of food intake again increases around 1530 hours in the summer and 1430 hours in winter. They spend on an average 36.8% of the day time for feeding in summer (average day length-14 hours) and 28.12% in winter (average day length-11 hours). Light rain showers are no obstacle for feeding to these babblers but feeding activities are restricted during heavy rainfall.

## Conclusion

The results of this study clearly indicate that Jungle Babblers are omnivorous in habit exploiting both plant and animal resources available to them. But, compared to plant foods, the animal food mainly insects are consumed in larger proportions. The Jungle

Babblers therefore help to keep an efficient check on various stored grains. So, in conclusion we can say that Jungle Babblers harmful insects like grasshoppers, beetles, termites, bugs, are a useful species for mankind. caterpillars etc., which are injurious to the agricultural crops and

**Table-1**  
**Different food items consumed by Jungle Babblers (*Turdoides striatus*) during study period**

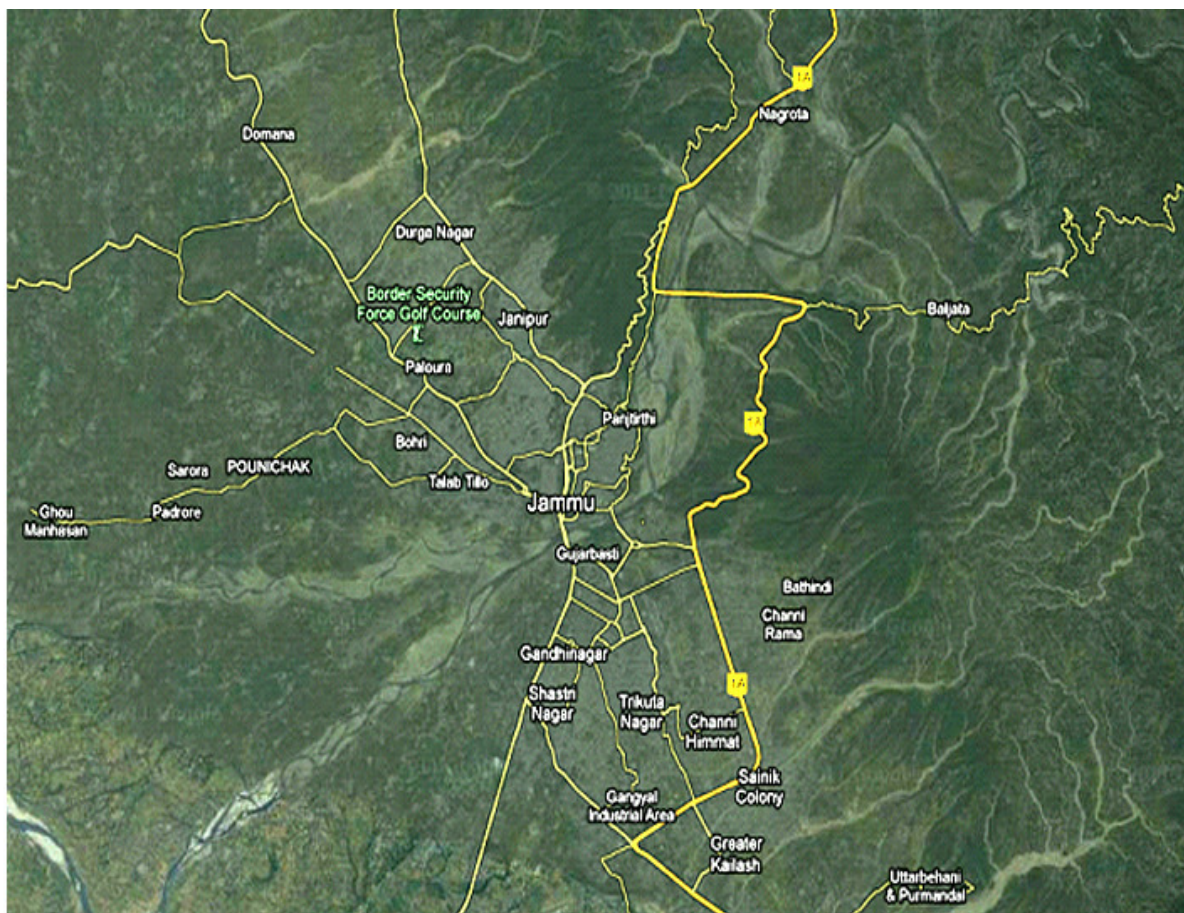
	Food Item	Order/Family	Name of Species
ANIMAL MATTER	Insects	Orthoptera	Grasshoppers, Crickets
		Coleoptera	Beetles
		Lepidoptera	Moths, Butterflies, Caterpillars
		Isoptera	Termites
		Odonata	Dragonflies
		Hymenoptera	Ants, Bees, Wasps
		Mantodea	Mantis
		Blattaria	Cockroaches
		Hemiptera	Bugs
	Arachnids	Araneida	Spiders
PLANT MATTER	Grains	Graminae	Rice ( <i>Oryza sativa</i> )
		Graminae	Wheat ( <i>Triticum aestivum</i> )
		Poaceae	Bajra ( <i>Pennisetum glaucum</i> )
		Poaceae	Maize ( <i>Zea mays</i> )
	Nectar	Malvaceae	<i>Bombax ceiba</i> (Silk cotton tree)
	Fruit	Rhamnaceae	<i>Zizyphus jujube</i> (Ber)
		Moraceae	<i>Morus alba</i> (Mulberry)
		Moraceae	<i>Ficus religiosa</i> (Figs)
Seeds	Flacourtiaceae	<i>Casearia elliptica</i> (Mojal)	

**Table-2**  
**Frequency of different foraging methods of Jungle Babbler (*Turdoides striatus*)**

Methods	Hopping and Gliding	Peering	Probing into curled-up leaves on trees	Digging and probing into holes on ground	Flicking of dead leaves on ground	Stationary plucking	Total
Frequency	35	11	14	32	54	7	153
Percentage	22.9	7.2	9.2	20.9	35.3	4.6	

**Table-3**  
**List of birds sharing feeding sites with Jungle Babbler (*Turdoides striatus*)**

S. No	Name of the species	Order	Family
1.	Common Myna ( <i>Acridotheres tristis</i> )	Passeriformes	Sturnidae
2.	Black Drongo ( <i>Dicrurus adsimilis</i> )	Passeriformes	Dicruridae
3.	Red-vented Bulbul ( <i>Pycnonotus cafer</i> )	Passeriformes	Pycnonotidae
4.	Hoopoe ( <i>Upupa epops</i> )	Coraciiformes	Upupidae
5.	Little brown Dove ( <i>Streptopelia senegalensis</i> )	Columbiformes	Columbidae
6.	Ring-necked Dove ( <i>Streptopelia capicola</i> )	Columbiformes	Columbidae
7.	Spotted Dove ( <i>Streptopelia chinensis</i> )	Columbiformes	Columbidae
8.	Goldenbacked Woodpecker ( <i>Dinopium benghalense</i> )	Piciformes	Picidae
9.	Rose-ringed Parakeet ( <i>Psittacula krameri</i> )	Psittaciformes	Psittacidae
10.	Bank Myna ( <i>Acridotheres ginginianus</i> )	Passeriformes	Sturnidae
11.	House sparrow ( <i>Passer domesticus</i> )	Passeriformes	Passeridae
12.	Pied Myna ( <i>Sturnus contra contra</i> )	Passeriformes	Sturnidae
13.	Rufous Backed Shrike ( <i>Lanius schach erythronotus</i> )	Passeriformes	Lanidae
14.	Indian Treepie ( <i>Dendrocitta vagabunda</i> )	Passeriformes	Corvidae
15.	House Crow ( <i>Corvus splendens</i> )	Passeriformes	Corvidae
16.	Common Babbler ( <i>Turdoides caudatus</i> )	Passeriformes	Timaliidae
17.	White-cheeked Bulbul ( <i>Pycnonotus leucogenys</i> )	Passeriformes	Pycnonotidae



**Figure-1**  
**Map of study area**

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