

BEHAVIOUR OF THE WHITEHEADED BABBLER *Turdoides affinis* JERDON¹

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(With two text-figures)

Key words: whiteheaded babbler, *Turdoides affinis*, behaviour, home range, sentinel, preening, interaction within groups.

The whiteheaded babbler, *Turdoides affinis*, lives in groups. A group has a large home range within which there is a well defined territory. The species has a well organised sentinel system. Though the sentinel duty was shared by other members of the group, the breeding birds and other older birds acted more often as sentinels and for a longer duration. It is speculated that allopreening in the whiteheaded babbler helps to reduce aggression and promote group integration. This babbler roosts communally. The groups of whiteheaded babblers appear to be organised hierarchically. Calls appear to have a definite function in the species. Clumping, allopreening, sentinel system and the large repertoire of vocalizations may be helpful in consolidating the group and co-ordinating its movements.

INTRODUCTION

Babblers of the genus *Turdoides* have a wide distribution in South and West Asia and Africa. They live in groups, defend a common territory and nest co-operatively. Biology of the jungle babbler *Turdoides striatus* was studied by Andrews and Naik (1970) and social behaviour by Gaston (1977). Gaston (1977, 1978) has reviewed all previous literature on the genus *Turdoides*.

From 1974 to 1977 we studied the ecology of the whiteheaded and the jungle babbler, two common sympatric species, resident in Malappuram and Calicut districts, ($10^{\circ} 30' - 45' N$ lat and $75^{\circ} 40' - 50' E$ long) in Kerala, South India. The aim of this paper is to describe some of the behavioural characteristics of the whiteheaded babbler.

MATERIALS AND METHODS

The whiteheaded babbler *Turdoides affinis* and the jungle babbler *T. striatus* were observed

regularly in an area of 2.27 sq. km of the Calicut University Campus. Nearly 5000 hours were spent in the field. Twenty-three adult whiteheaded babblers and nine jungle babblers were trapped in mistnets and marked with coloured plastic rings. Forty-five whiteheaded babblers and sixteen jungle babblers were ringed as nestlings. Day long observations were carried out on individual groups. For comparison, the rufous babbler *T. subrufus* and the Wynad laughing thrush *Garrulax delesserti* were observed in Wynad, Kerala and the large grey babbler *T. malcolmi* in Gundalupet, Karnataka.

RESULTS

The whiteheaded babbler forages in groups of 3-14 birds, progressing slowly by hopping and gliding. Individuals remain within a radius of 25-30 m from the centre of the group. Members of a group move together, share a common foraging area, defend a common territory and roost and nest together. They glide from perch to perch or from a bush or tree to the ground. From the ground they fly to the low lying branches and hop from branch to branch. The birds invariably hop to the tree tops and glide again. The group

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moves together, crisscrossing different parts of their home range. Foraging flocks turn over dead leaves and explore the clumps of grasses, curled up leaves, herbs, holes on the ground, and the crevices in tree trunks.

Home Range and Territory

The whiteheaded babbler has a larger home range with a well defended core area, the territory within which they roost and nest. Home ranges of adjacent groups often overlap (Fig. 1) but territories have established boundaries. The size of the home range varies from 5.3 ha to 9.3 ha (Table 1). However there is no relation between the size of the home range and the size of the group (Table 1).

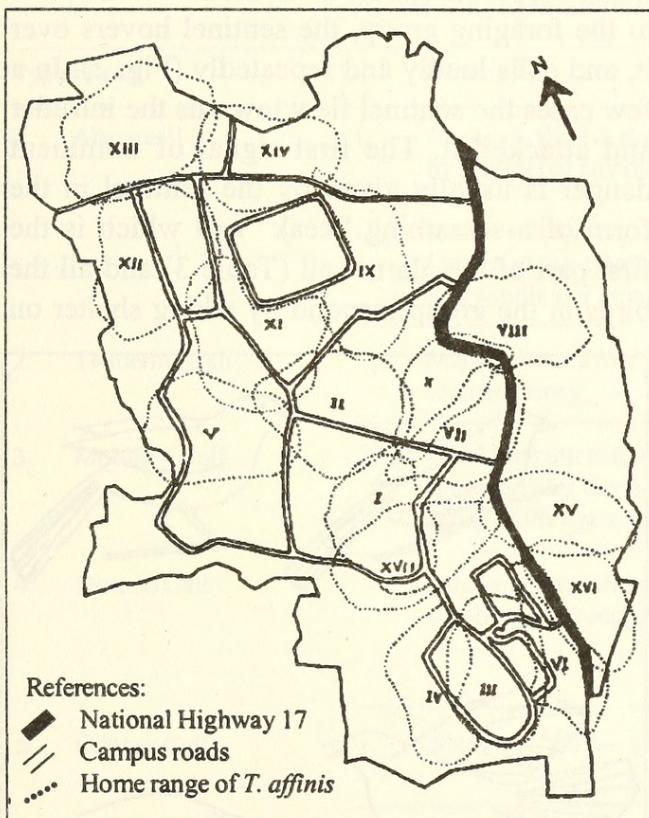


Fig. 1. Home range of *T. affinis* in the Calicut University Campus

The groups are highly territorial and never allow other groups of their own species or jungle babblers to enter into their territory. Trespassers are mobbed by the owners of the territory.

Physical clashes occurred in a few cases. However, up to four groups share a common foraging area. They also share common foraging areas with the jungle babbler.

TABLE 1
SIZE OF THE HOME RANGE AND THE GROUP SIZE
IN *T. AFFINIS* IN THE CALICUT UNIVERSITY
CAMPUS

Group	No. of birds in December 1973	Approx. size of the home range (in ha)
I	5	6.9
II	3	9.3
III	5	7.5
IV	4	6.4
V	14	8.8
VI	10	5.3
VII	4	5.7
VIII	4	7.4
IX	8	8.6
X	6	6.9

Waking Activity and Rest

Whiteheaded babblers wake up between 0555 and 0625 hrs. The first bird to wake up flies out to a new perch followed by others immediately or after waiting for a few minutes. They preen for about 3-6 minutes and start feeding. After feeding for about 30 minutes, the birds preen again for 10-15 minutes before foraging is resumed. From 1330 to 1630 hrs the whiteheaded babbler takes rest in shady areas.

Roosting

At the close of the day between (1800 and 1900 hrs) the whiteheaded babblers noisily assemble on bushes or trees near their feeding sites and preen themselves and one another for 3-18 minutes. The birds rub their bills, call softly and move to their roosting trees. The roosts are 2-6 m high from the ground (Zacharias and Mathew, 1988). In the rainy season, they roam about and halt temporarily on several trees before reaching the final roost. Roosts are changed when

the group begin nesting, usually after incubation has begun. On the roosting branch the members of a group sit close to each other. Larger groups roost on more than one branch. Birds reaching late wedge themselves between others. Juveniles roost in the middle of the group.

In March and April we observed 7 cases of some alien adult whiteheaded babblers trying to roost with an established group. These strange birds seemed to be immigrants from areas outside our study area. When the roosting group was disturbed by any type of commotion in the vicinity, some of the adult birds came out and watched the intruders till the scene became peaceful. In two cases it was the breeding male which came out to scrutinize.

The roosting pattern of the jungle babbler and the rufous babbler is very similar to that of the whiteheaded babbler. But jungle babblers are less noisy at the time of roosting.

Sentinel

In foraging groups of the whiteheaded babbler one bird takes position on a tree or bush and acts as sentinel. Dharmakumarsinhji (1951) described this first in the jungle babbler. Similar behaviour was observed in Florida scrub jay by McGovern and Woolfenden (1989). The sentinel has a clear view of the surroundings. It warns the group of the approaching danger by uttering typical alarm calls. This duty is shared by all members of the group except juveniles, but the breeding birds and other older birds act more often as sentinels and for a longer duration than others (Table 2). In one group, which was observed continuously for about 11 hours, the breeding male spent about 5 hours on sentinel duty. This was observed when the group was not nesting and spent more time feeding. As the day progresses, the time spent on sentinel duty also increases. In the absence of any disturbance, the sentinel watches silently. If a predator or an intruder comes within a distance of 10-15m of a foraging group, the sentinel becomes active and keeps calling, till

TABLE 2
SENTINEL DUTY OBSERVED IN GROUP I OF THE
WHITEHEADED BABBLER FROM OCT - NOV 1976

Status of the Bird	Frequency	Total time spent on duty in minutes
Breeding Male	88	312
Breeding Female	46	98
Non-Breeding Male*	46	102
Non-Breeding Male	32	66
Non-Breeding Bird (sex?)	18	34
Non-Breeding Female	12	30
Second Year Bird	10	21
First Year Bird	6	11
Total Observation	258	694

*Became the breeding male when the breeding male disappeared.

the danger has passed. A sentinel in action spreads its wings and tail, flicks them fast and keeps on pivoting. As the intruder draws closer to the foraging group, the sentinel hovers over it, and calls loudly and repeatedly (Fig. 2). In a few cases the sentinel flew towards the intruder and attacked it. The first signal of imminent danger is usually given by the sentinel in the form of a screaming "keak" call which is the first part of the alarm call (Table 3) and all the birds in the group respond by taking shelter on

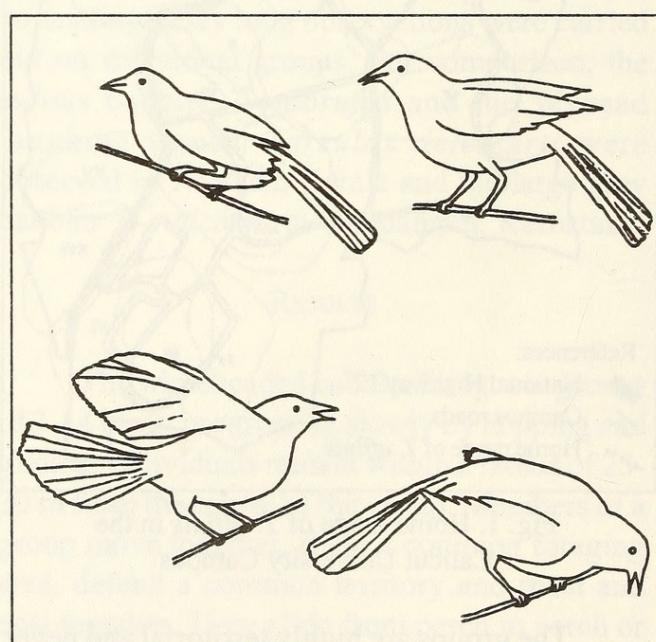


Fig. 2. Poses adopted by a Whiteheaded Babbler on sentinel duty

trees or in bushes. Those on exposed branches and bushes withdraw into more concealed areas. They resume foraging as soon as the predator moves away. But if the intruder persists, the owners of the territory mob it.

The sentinels of *T. affinis* groups move ahead or behind the foraging party. Sometimes the groups appear to feed without a sentinel, at least we could not see one. The moment an intruder appears on the scene, a sentinel moves into position. This sentinel is active only if there is any possibility of danger, otherwise it preens. In larger groups and in those with juveniles, the sentinel on duty is assisted by one or two other

birds. The main sentinel carries out its duty as usual. The second and third birds act only for shorter periods.

A sentinel was present in 236 out of 238 observations on *T. affinis*. The sentinel activity was observed at heights of 2-7m on the branches of trees, bushes, rocks, compound walls, lamp posts, sunshades and telephone wires. Changes of sentinels were similar to those of *T. striatus* (Gaston 1977).

In the whiteheaded babbler, the breeding pair normally performed sentinel duty more than the rest of the birds in the group (Table 2). In one group, a non-breeding male Rr was observed

TABLE 3
VOCALIZATIONS OF THE WHITEHEADED BABBLER

Type of call	Description	Context and effect
1. Alarm call	i. <i>Keek</i> call, short & shrill, uttered by sentinel or any other bird.	Unexpected appearance of a predator/intruder. Birds take shelter.
	ii. Low & soft <i>Kurrh.... Kurrh... Kurrh...</i> Uttered at low frequency, sounds like winding of time-piece.	If the intruder persisted.
2. Twittering Call	Many syllabled <i>Ki-Ki Ki-Ki</i> loudly at high frequency.	Uttered by birds when separated from their group. Nestlings give similar call.
3. Mobbing Call	Loud high pitched whistling call made repeatedly by few or all members of a group. Bills open, wings fluttered.	For driving away predators/intruders and while fighting.
4. Distress Call	Loud whining call resembling the moaning of a young dog when harassed.	Given by young or adult when handled, trapped in nest or hurt in shooting — brings other members of the group to the spot at once.
5. Contact Call	Short low "Ke" — uttered at intervals.	Often while foraging and feebly while preening.
6. <i>Ke-Ke-Ke</i> Call like the <i>Cu-Cu-Cu</i> call of the Jungle Babbler (Gaston 1977)	Low- <i>Ke-Ke-Ke-</i> repeated several times.	By adult birds prior to leaving an area.
7. Begging Call	Low pitched whistling call given by older fledglings and juveniles.	Uttered by older fledglings while adults visit the nest and by juveniles while moving with groups.

to act as sentinel for longer duration. The breeding male PB and female G came next in order. In the next nesting, the breeding male PB disappeared and Rr took its place.

On three occasions the sentinel white-headed babbler was attacked or chased by the domestic cat, Ceylon shikra *Accipiter badius* and jungle crow *Corvus macrorhynchos*, but suffered no harm.

Interaction within group

Members of a group foraged within close distance and no conflict was observed between them. Juveniles often tried to snatch the prey collected by adult birds. The adults either conceded or moved away.

Response to Predators and Other Alien Species

The whiteheaded babblers often foraged together with the jungle babblers, crows, mynas, drongos and squirrels without any conflict. But clashes were observed between individual whiteheaded babblers and common mynas and babblers and black drongos over insect food.

These babblers never tolerated birds of prey like kites, hawks, owls and owlets and ground predators like mongooses and snakes near their territory, or foraging areas. Babblers are aggressive towards these predators and mob them and never rest until the intruders move away. But if the intruders persist, the babblers withdraw to a safe area.

Preening and Body Care

In the intervals between feeding, the whiteheaded babblers very often clumped together. In clumping the birds pressed their bodies close together. Clumping was invariably accompanied by allopreening. The birds often perched facing in same or opposite directions for allopreening. Some individuals moved a little away and indulged in autopreening. Soliciting

of allopreening is commonly observed, mostly among juveniles and first year birds. The bird to be preened sidled towards another bird as if to solicit attention. The former then dropped its wings, raised its head, erected the feathers on the head and neck and got closer to the prospective preener. The latter also raised itself by stretching its legs and preened different parts of the head and body of its partner.

Three or four birds sometimes formed allopreening units. The breeding pair spent more time in allopreening. Allopreening interaction started at waking time and could be observed during different times of the day. Longer bouts of allopreening occurred from 0630 to 0830 hrs and from 1300 to 1500 hrs. Similar allopreening was observed in the jungle babbler and the Wynnaad laughing thrush. It was also recorded in the jungle babbler and the common babbler *T. caudatus* by Gaston (1977, 1978).

Hardy (1974) described the feather erection behaviour in the head and neck region as forming the typical submission posture among neotropical jays of the genus *Cissilopha* as an invitation for allopreening. According to Gaston (1977) in the jungle babbler, soliciting, and receiving allopreening help to maintain an individual's position within its group, reduce aggression and promote group cohesion.

Leadership in Movements

On a few occasions when the whiteheaded babblers crossed open areas like playgrounds and roads or attacked intruders we could identify the leading bird. Out of 21 such cases (group I, during 1975-76), the breeding male proceeded first in 9, the breeding female in 4 and a nonbreeding male in 6 cases.

Play Among Birds

First year whiteheaded babblers indulged in 2 types of behaviour which could be described as play.

1. Chasing each other

The first year whiteheaded babblers chased one another from perch to perch on trees and also on ground without any apparent provocation. This type of behaviour was observed in the first year jungle babbler, rufous babbler, large grey babbler and the Wynnaad laughing thrush. Gaston (1977, 1978) has observed this in the jungle babbler and the common babbler.

2. Leap-frogging behaviour

Two or more first year birds moving on the ground ran one after the other with drooped wings. They pecked each other and occasionally one young whiteheaded babbler leaped over the head of another.

Bathing

In the course of their foraging activities whiteheaded babblers bathed in canals and ditches. One by one the birds hopped into the water, dipped their heads and underparts and wings of each side alternately.

The babblers then moved to perches and shook themselves vigorously for a while and then splashed into the water again. This was repeated 3 or 4 times, and thereafter the birds dried their feathers and preened. This behaviour was observed in the jungle babbler, the rufous babbler, and the Wynnaad laughing thrush. On one occasion these babblers were observed bathing with jungle babblers, magpie robin, common myna and tree pie in a small spring.

Sunbathing

Both jungle babblers and whiteheaded babblers sometimes exposed themselves to the bright warm sun, stretched their body and wings and preened. This activity appears to be sunbathing.

Vocalization

Seven types of calls were distinguished (Table 3) in the whiteheaded babbler. The calls appeared to have definite functions like warning and co-ordination of movements of the group. Andrews and Naik (1970) listed seven and Gaston (1977), eleven types of vocalization in the jungle babbler.

DISCUSSION

In our study area, the whiteheaded babbler and the jungle babbler live sympatrically. There is a great deal of similarity in their behaviour patterns. The whiteheaded babbler has a large home range with a well defended core area, the territory. Allopreening is likely to reduce aggression and promote group integration in the species. The sentinel system is important in ensuring the survival of the whiteheaded babbler. It is noteworthy that the more mature birds like the breeding pair which could be expected to have a better knowledge of the group's home range served for longer periods as sentinels. Gaston (1977) has suggested that the sentinel birds of the jungle babblers were able to forgo foraging for longer duration and that this behaviour may be related to the birds' superior ability to find food. Gaston (op. cit) has also indicated that the role of sentinel may be partly to advertise the status of the birds concerned. Self advertisement relating to the dominance status was described by Moholt and Trost (1989) in blackbilled magpie. The sentinel of *T. affinis* often detected the conspecific intruders from the territory. It may also be possible to attribute a territorial display for the sentinel behaviour. Since the sentinel often flies towards the intruders and attacks them, it takes the risk of predator attack, which indicates an altruistic function. Several factors listed below point to the possibility that this species has a well established hierarchical organization.

1. Playful fights of juveniles may be a means of establishing their position in the hierarchical order of the group.

2. The older birds and breeding pair spend a lot of time in allopreening.
3. The breeding birds and other older birds serve longer spells as sentinels.
4. In an exceptional case where a non-breeding adult male was the first sentinel, it became the breeding male, when the breeding male of the group disappeared.
5. In a few cases observed, the breeding male was the first to move out after waking and while the group crossed an open field or playground.

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