

Vocalizations and behaviour of the Forest Owlet *Athene (Heteroglaux) blewitti*

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Observations of a pair of Forest Owlets *Athene (Heteroglaux) blewitti* in north-western Maharashtra, India in June and July 1998 resulted in the first information on the species's song and further data on its habits. The previously unknown song is a distinctive series of short, rather loud, mellow, typically disyllabic notes, each with the middle part highest, transcribed as *uwuwuw* or *uh-wuwuwuw*. The species is strongly diurnal, and was observed foraging on the ground and eating a lizard in a tree. The pair we observed tolerated some disturbance by mammalian intruders and to the integrity of the forest in their territory. Smaller birds either ignored them or mobbed them only at low intensity. Their flight was direct, strong, and not undulating. Some maintenance and display behaviours are described.

INTRODUCTION

The Forest Owlet *Athene (Heteroglaux) blewitti* has long been one of India's least known and most enigmatic birds. Until its rediscovery in late 1997 (King and Rasmussen 1998) it was genuinely known only from seven 19th-Century museum specimens and a few very brief natural history observations (reviewed in Rasmussen and Collar 1998), and it is one of the very few Indian birds for which no vocalizations had ever been described. Its equivocal taxonomic position, with strong possibly superficial resemblances in plumage to the Spotted Owlet *Athene brama*, and yet a very different aspect in life, coupled with major osteological differences from all *Athene* (including *Speotyto*), has led to a reconsideration of its generic status (Rasmussen and Collar ms), and it was assumed that data on voice would help clarify this issue.

A few behavioural observations were made at the time of rediscovery along the Shahada-Toranmal road, Maharashtra, in November 1997 (King and Rasmussen 1998). At that time, despite intensive attempts to tape-record the owlets, a call was heard that probably came from a Forest Owlet in flight, but this call was not taped (King and Rasmussen 1998), and no songs were heard.

Subsequently, between 15 and 27 June 1998, we revisited the site (with M. Alam), made further observations totaling about 11 hours 35 minutes on 13 occasions over 8 days, and tape-recorded some of the Forest Owlets' infrequent vocalizations. Our longest observation period lasted 2 hours 45 minutes, but several were of birds seen well but briefly. We also spent several periods listening for calls in darkness before dawn and after dusk. We had no indication during the June observations that more than two individually recognisable (unringed) birds were involved at the rediscovery site. Later in the year FI revisited the site, and a few of her observations are included here.

We realise that these observations are preliminary and represent only part of the species's behavioural and vocal repertoire, but we record them here since so little is known of this bird, and some of the data are likely to be of conservation and scientific relevance. All three observers are thoroughly familiar with the field and vocal characters that readily separate the Forest Owlet and

Spotted Owlet. No Spotted Owlets were seen or heard in the observation site, although four were later found at a distance of 4 km from the Forest Owlet rediscovery site. We have ample video footage that confirms the identity of the Forest Owlets and shows them giving the songs, calls and behaviours described herein.

VOCALIZATIONS

Three types of vocalizations were heard from the Forest Owlets:

(1) *Hissing call*

On several occasions we heard a low, flat, buzzing hiss, *shreeee* or *kheek*, lasting c. 2–3 seconds and rising slightly near the end; on a few occasions we saw this call definitely being given by Forest Owlets. At other times the hissing call was given repeatedly (and tape-recorded) for long periods, but the presumed owl making the call could not be located, even though we were watching another nearby non-vocalizing individual for long periods. This call was rather similar to one of the common calls given by Indian Rollers *Coracias benghalensis*, which were abundant in the area, but that of the Forest Owlet was much quieter, flatter, less harsh or rasping, and less noticeable. In fact this hissing call could not be heard at any great distance and was easy to overlook. For one of the taped sequences (in which the calling bird was not seen, but circumstantial evidence is unambiguous), 31 iterations of the hissing call were recorded over a period of 16:03 min, at intervals of from 6–53 sec, with a mean interval of 17.7 ± 9.15 sec.

(2) *Song*

A musical call given in series and heard on several occasions during our observations is here termed the song (Figure 1). It does not resemble the hoots or whistles common as songs among small owls. The song consists of short, rather loud, mellow, well-spaced notes, which may sound monosyllabic but are usually clearly disyllabic. Each note ascends and descends very rapidly, has a urgent quality, and an abrupt ending. During the more extended song bouts, the notes (which when monosyllabic sound like *uwuwuw* or *wuwuwuwuw*) are at first

widely spaced, then more closely spaced with more tendency to be disyllabic (*uh-wuwuwuw*). On a few occasions only one or a few of these notes were given by perched birds. One sequence (in which the first bird contributed the initial few notes, while the other gave the subsequent ones, both individuals being seen well), taped at c.10h00 on 20 June, consisted of at least 48 notes (42 in an unbroken series). The intervals between notes in the unbroken series ranged from 4-15 sec, with the mean at 7.1 ± 2.3 sec. The interruption was due to noise generated by PCR moving towards the calling owl while recording the call.

The notes in the song are typically centred just below 1.0 kHz, each one ranging in frequency between c. 0.75-1.1 kHz (Fig. 1a, c); however, Fig. 1b shows a slightly lower note, between c. 0.6-0.8 kHz. The song notes, which last c. 0.1 seconds, consist of paired elements each of which rapidly rise and fall for nearly the entire frequency range, producing the somewhat disyllabic effect. The first element is shorter (c. 0.03 seconds) than the second element (c. 0.07 seconds), and typically with a lower frequency range and reduced amplitude (but see Fig. 1c).

Compared to the raucous, burry tone of the familiar song of the Jungle Owllet *Glaucidium radiatum*, the song of the Forest Owllet is sweeter, quieter, mellower, sometimes sounding like a single syllable but usually disyllabic, with a slight purring quality, about 0.1 sec long and strongly descending near the end. The notes were clear, musical, and loud enough that they bear a stronger resemblance to some initial notes in songs of Koel *Eudynamis scolopacea* than to any notes we have heard given by Jungle Owllets; however, the notes in question in Koel songs are shrill and loud compared to the mellow quality of the Forest Owllets' song. Spotted Owllets *Athene brama* apparently have no comparable songs to that of the Forest Owllet (Ali and Ripley 1969, Suresh Kumar 1985). For the Little Owl *Athene noctua* the male's advertising call has been variously described

as a "full, mellow hoot, 'gooooek'", which seemingly could be taken as similar to that of the Forest Owllet, but the accompanying sonagram (Cramp 1985:521, Fig. 1) shows the Little Owl's song to be of a very different structure than that of the Forest Owllet (Fig. 1). For the other species sometimes placed in the genus, the Burrowing Owl *Athene cucularia*, the male's primary song is a *coo coooo*, but again with a very different structure to that of the Forest Owllet (Haug *et al.* 1993).

During our June observations, the birds sang rarely and unpredictably from various prominent, relatively high perches on different trees and at different times of day. In June we did not hear it during non-daylight hours despite our presence at the site on a few occasions during hours of darkness. In July, however, FI heard the song of the Forest Owllet at 22h30 after rain, followed by the hooting of Mottled Wood Owl *Strix ocellata*. While singing, the owl puffs out its throat, making the pure white feathers particularly conspicuous.

The taped song sequence on 20 June followed continuous observation of a resting owllet beginning at 07h30. The bird gave no audible sounds, but just before 10h00, it started looking intently across the valley, and immediately we heard and taped the hissing call coming from behind us (not from the bird under observation). The resting bird we had been observing then gave a few sporadic song notes, following which the apparently arriving bird gave the long series of notes.

(3) Contact call

A third call was heard, tape-recorded, and videotaped by FI on 6 September at 13h13. The owllet, which was resting at the top of a tree, allowed itself to be approached to within 15 m but stayed watchful. Suddenly another Forest Owllet started giving repeated *kwaak...kwaak* calls, rising and falling in pitch, when a third Forest Owllet entered their territory. Later FI found that this call is given commonly when paired birds call back and forth on their territories and during territorial disputes.

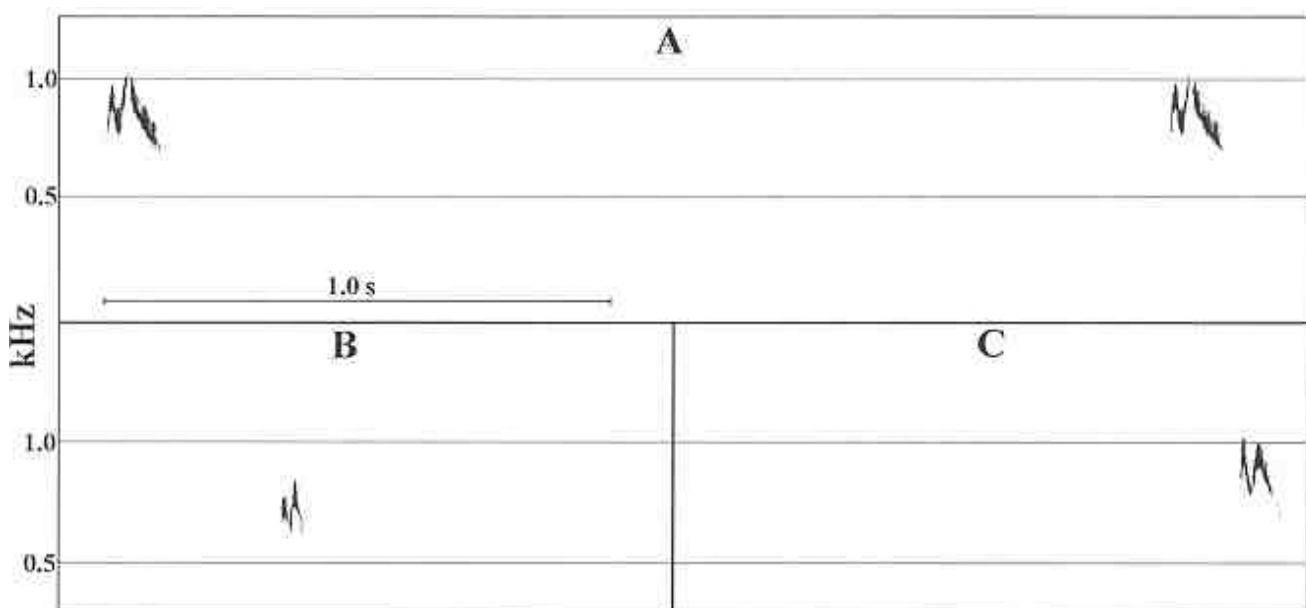


Figure 1. Sonagrams of vocalizations (song) of the Forest Owllet *Athene blewitti*. (A) Two songs in a sequence (interval 1.8 sec); (B, C) two songs from separate sequences to show variation in pitch and form. Tape-recordings by PCR, Shahada-Toranmal road, June 1998.

A total of three Forest Owlets then continued giving the *kwaak* calls for about five minutes and then fell silent for a considerable time.

BEHAVIOUR

General

Feeding perches seen were close to the ground in smaller trees, while resting and calling perches were higher up in larger trees, often near the top. When perching the owlets usually sat with their feet very close together. During our June observations, they were usually seen perching in somewhat sheltered situations, in at least partial shade, or in unshaded spots in overcast weather. Once when a rather stiff breeze picked up, an owlet that had been under observation for about an hour reoriented itself 45° to face the direction of the wind; when it dropped, the bird returned to its previous position. During June, although we were frequently able to find a resting bird in the same patch of trees, we did not locate any regular daytime roosts. Thus we did not find an area where pellets or whitewash had accumulated. Nor did we find anything appearing to be a night-time roost or regular perch, as all visual and aural observations of the birds were made during daylight hours.

Rest and preening

A resting bird located at 17h30 on 19 June engaged in preening and wing-stretching (giving one yawn) from 18h00 until 18h25, when it flew unprovoked across the ridge. It (or another) was then relocated across the ridge at 19h00, where it was perching near the end of a long limb of a large tree, looking active but without calling. It then flew south-east and disappeared. It or another was heard singing four times in succession at about 19h30 to the north-west of its location at 19h00.

On 20 June an owlet was watched from 07h30 to 10h10 in a small-leaved tree on the ridge, about 6 m high in a 10 m tree. During that time it undertook 11 preening bouts, passed at least two droppings, gave two or three yawns but ejected no pellets. Much of the time it sat with one or both eyes closed, but only for short periods. For most of the period it sat on one foot, with its resting foot tightly furled against the abdomen. It also engaged in vigorous beak-wiping against its perch and, once, it suddenly fluffed out its body feathers. Much of the time it sat looking around, alternating this behaviour with closing its eyes. It was entirely silent until just before 10h00 (see above). After one wing-stretching exercise, the bird left its wings limp, especially the left one, and flattened itself oddly against the branch, all the while looking in our direction. The bird looked clumsy and helpless when in this posture, but after about 30 sec it resumed normal perching posture. This behaviour resembled the sunning posture of some birds, but as this individual had been in the shade the whole time, the behaviour's stimulus was not apparent.

On 7 July four song notes led FI to locate a Forest Owlet, which was then observed for two hours. At around 10h00 it ejected three pellets, and 20 minutes later it ejected more pellets.

Most of our longer observations were of resting birds, which frequently preened, but only for short periods.

These preening bouts were usually rather cursory, involving toe-cleaning, wing-stretching, face-scratching, and preening of various portions of the plumage. Both of the owlets were moulting at least slightly; one was apparently largely in worn plumage, with the tail-tip unevenly worn off so that no white was visible and one outer rectrix was broken off higher up. All its rectrices were drab and not highly contrasting, but although the breast feathers showed clear white fringes, the bird looked solid brown at a distance. This individual appeared to have less heavily white-feathered toes than the other, consistent with its being in a more worn state (as is the sole April BMNH specimen: Rasmussen and Collar 1998). The other owlet appeared to be largely in fresh plumage, with notably bright, fresh, highly contrasting rectrices: the white terminal band was broad and extremely conspicuous, and one outer rectrix was not yet fully grown. During one preening bout on 19 June one individual was seen to drop two contour feathers separately.

Responses to human disturbance

Several times when first encountered in the day an owlet showed a stylised behaviour ("bobbing display"). This consisted of the bird mechanically lowering its head and upper body to about the level of the feet (thus covering them), and staring fixedly at the observer, bobbing slightly; then it would abruptly raise itself as high as possible, when the short, thick legs became very obvious and also the white feathering of the legs and belly showed conspicuously, almost beaconlike. The two phases of the display were alternated every few seconds, after which the bird assumed a normal posture. At least once the bobbing display was accompanied by the hissing call. A posture similar to the stretching behaviour described above was assumed briefly by a bird foraging on the ground (see above).

We could not locate the owlets on the afternoon of 17 June, when several villagers were quietly cutting grass below the trees in which we usually found at least one individual, and our failure to find the birds may have been due to this disturbance. Nor could we find the birds on 18 June when several cows were grazing under the same trees. The owlets did not appear to be bothered by the regular (several times a day) passing of buses, lorries, or other vehicles, nor by the frequent pedestrians and herds of cattle and goats going by on the road. However, this is not likely to be the case when livestock and woodcutters enter what remains of the forest in the owl's territory.

Responses to and by other bird species

During the active feeding behaviour of 16 June (see below), no incidents of mobbing by other birds were witnessed between 08h00 and 09h15, and one or both of the owlets were visible almost all that time. Then at c. 09h15 a party of Jungle Babblers *Turdoides striatus* became visibly and audibly excited, flying around one of the owlets which by then was perching in the upper branches. Although the babblers flew and called around the owl for a few minutes, they did not mob it at high intensity, and one of them even stopped to preen for a time on a branch just below the owl. After a few minutes the owl flew off and joined the other.

On 20 June, the owlet that was watched between 07h30 and 10h00 was approached by a pair of Grey Tits *Parus major*, which came near apparently to investigate, but without calling, and then left, eliciting no obvious response from the owlet. Later a Red-vented Bulbul *Pycnonotus cafer* approached the owlet, and the two looked at each other; the bulbul then left without scolding the owlet. After a calling bout, this owl assumed a watchful, upward-looking behaviour when a White-eyed Buzzard *Butastur teesa* flew very low overhead.

On 24 June, an owlet that we had been watching since 06h30 was approached by a Red-vented Bulbul which was flicking its tail and raising its crest, slightly excited but not scolding. The owl continued to preen, paying the bulbul no heed. But at 09h00 that morning a bulbul flew right at the owlet, which crouched and watched until the bulbul left very shortly thereafter. Later, a Black Drongo *Dicrurus macrocercus* swooped low over the tree near the top of which the owlet was perched. The owl ducked, then looked up, seemingly to see if the drongo had left. A Rufous Treepie *Dendrocitta vagabunda*, which landed and called in the other side of the tree, elicited definite watchfulness from the owl, but the treepie flew off without approaching the owl. On 24 June, a resting Forest Owlet gave no apparent reaction when Jungle Owlets called nearby.

Although Jungle Owlets were very common in the area and called frequently from adjacent trees, they were not seen in the trees where the Forest Owlets spend much of their time roosting, so there may well be some partitioning and/or competition between these two species. While in November 1997 we repeatedly saw Indian Rollers chasing Forest Owlets away from their treetop perches (King and Rasmussen 1998), this was not witnessed during June, when interactions between these two species seemed minimal.

Flight

During active periods, the Forest Owlets frequently made short flights between trees. When approached too closely they would normally fly to a more distant tree, or sometimes out of sight. No reluctance to fly was apparent. A few relatively long flights were observed and, notably, no undulations were ever observed in any of these flights despite the expectation that the flight style would include this feature. During some flights the wings did appear to close briefly and sporadically, but not to the extent that undulations resulted (although they would be expected in a bird long placed in *Athene*, since all other members of the genus typically show an undulating flight style). In fact, all flights observed were relatively direct, agile and strong, although the birds have noticeably broad, rounded wings. When flying upwards from the ground or a low perch the broad wings are especially noticeable. The wingbeats are very quick and clipped. During the feeding activity described below for 16 June, about 30 or so short flights were seen, only a few of which were to upper branches between 08h00 and 09h00, after which some were to higher perches. At least one late-morning flight on 16 June resembled an aerial sally, although it could not be seen whether flying prey was captured.

Feeding

Our first June observation followed a hot, unsuccessful day (15 June) of waiting at the site, during which we had had no hint of the owlets' continued presence there since the November 1997 rediscovery. On 16 June we reached the site at 06h20, when it was not raining, following a night of drizzle. From 07h40-08h00, it rained moderately heavily, and when this changed to drizzle, PCR saw an owlet in flight. We were all then able to watch two birds behaving very actively, perching on low branches of young teak trees, intently watching the sodden straw covering the ground, then flying to the ground and capturing some small items. Sometimes they would fly back to a low perch before eating the prey, while on other occasions they appeared to consume the items on the ground, and sometimes appeared to be stamping a prey item on the wet straw. Several times both owlets were in view simultaneously, and once both were on the ground near one another. However, there seemed to be no true interaction while foraging in this manner; nor did they approach each other closely. One was seen "mantling" on the ground presumably over its prey; its wings were splayed out for a few seconds while it looked over its back in our direction.

During this first foraging observation, we were not sufficiently close to be able to discern the prey types, but since they were obviously small, they were most likely invertebrates flushed from the ground by the sudden first rain of the wet season. That afternoon, PCR searched the rain-flattened understorey vegetation for invertebrates and noted an abundance of several species of grasshopper and stick insect, among others. That evening there was an ant alate eruption, but we saw no owlets after about 18h30.

The next (and perhaps more typical) foraging observation was on 19 June (we failed to locate the birds on 17-18 June). At about 07h25 FI located a bird when it flew and gave a single song note. We then watched it for a few minutes as it rested, sometimes with eyes narrowed. It then flew unprovoked, seemingly only a short way, but we failed to relocate it. Not until c.08h40 did FI relocate an owlet in the same area, and it was then perched near the trunk of a thin teak, clutching a medium-sized lizard in its talons. By this time the lizard appeared to be headless, but all its appendages could be seen, and it looked uniformly dark grey with a long thin tail. The lizard must have been at least the length of the owlet but accurate comparison was not possible. The owlet voraciously tore off and ate chunks of meat from the lizard's trunk, then took a short rest, looking sated. Then it tore off and ate the tail, most of which continued to protrude from the bird's bill for a short time, before being swallowed entire in several gulps. The owlet's purposeful feeding behaviour seemed to indicate previous experience with this type of prey. The owlet flew a couple of times with its prey to different perches near the trunks of thin teak trees. After eating the tail it then flew off with the rest of the carcass (including the legs) and could not be relocated. No calls were heard during the entire feeding period.

In July, FI observed owlets near the road feeding while perched on small trees. The birds were usually seen in the evening around 18h00 on small trees up to

5 m above the ground, scrutinising the ground cover for prey. The owlets went to the ground several times to pick up items which could not be seen clearly, but they may have been caterpillars that were very common on small *Cassia* species.

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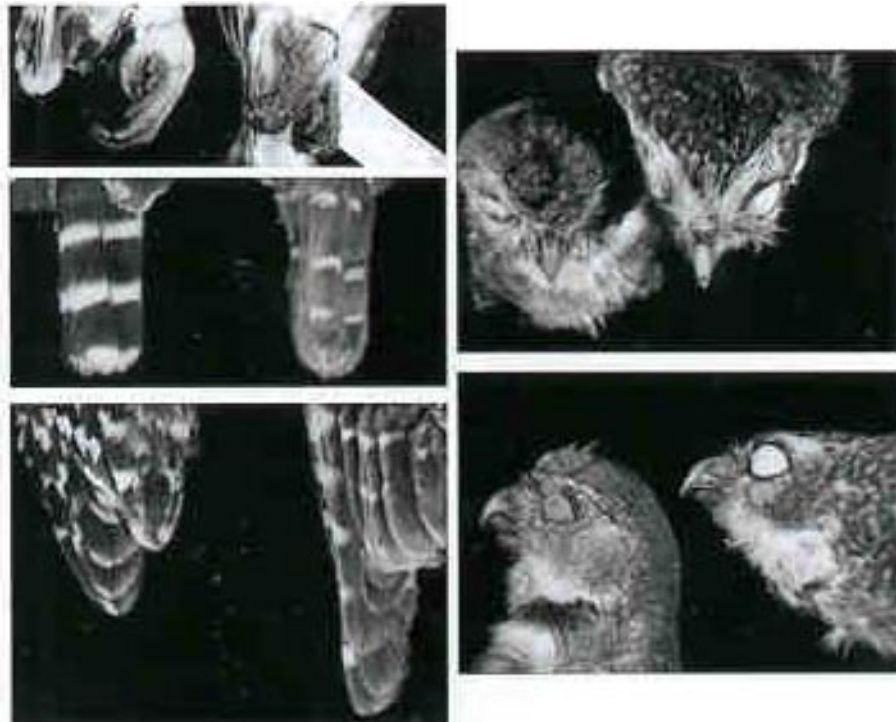
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CORRECTION TO FORKTAIL 14



On page 45 of Rasmussen and Collar (1998, as cited above), five photographs comprising Figure 2 were intended to show differences in external morphology between Forest Owlet and Spotted Owlet *Athene brama*. Owing to events outside the authors' control these photographs were poorly reproduced, and are thus republished here. The caption to the figure ran as follows:

“Comparison of external structure and plumage characters between Forest (on left of each pair) and Spotted (right) Owlets. Top left, feathering of toes and claw size; middle left, uppertail surface; lower left, tips of primaries and secondaries; upper right, crown spotting and culmen ridge width; lower right, pattern of auriculars.”