

Further information on the status and distribution of the Forest Owlet *Athene blewitti* in India

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The status and distribution of the Forest Owlet *Athene blewitti* was poorly known, even after a one year study on the ecology and behaviour of the species had been completed. A status survey was conducted in the central highlands in India, concentrating on the sites from where specimens had been collected earlier. During this 25-days survey (28 January to 22 February 2000), 25 Forest Owlets were located and two new sites for the species were found: Melghat Tiger Reserve in Maharashtra and Khaknar forest range in Madhya Pradesh.

BACKGROUND AND PREVIOUS SURVEYS

There have been very few records of the Forest Owlet *Athene blewitti* and the sparse information available on its distribution derives from seven specimens collected between 1872 and 1884 (Rasmussen and Collar 1998). It was categorized as Critically Endangered by Collar *et al.* (1994). Davidson (1881) described it as not uncommon in western Khandesh, where he collected four specimens, and two other specimens were collected in Madhya Pradesh (Hume 1873) and in Orissa (Ball 1877, 1878). Later, it was demonstrated that a specimen reportedly obtained at Mandvi, Gujarat, in 1914, was actually a fifth specimen collected by James Davidson in 1884 (Rasmussen and Collar 1999). On the basis of this fallacious information, an unsuccessful survey was conducted by the Bombay Natural History Society (BNHS) in the Mandvi area, on the Tapti River in southern Gujarat (Ripley 1976).

In 1997, the Forest Owlet was rediscovered in north-western Maharashtra (King and Rasmussen 1998). This

provided the impetus to search for more birds in similar habitats in central India. In June 1998, Rasmussen and Ishtiaq (1999) described the first recorded call of the species. Later in the year, FI surveyed the site and adjoining areas and located four pairs in Shahada and three pairs in Taloda forest (Ishtiaq 1999). In a one-year study at Toranmal range (June 1998 to June 1999), observations on the ecology and behaviour were made and four nests were located between October and May (Ishtiaq *et al.* in prep.).

Since Forest Owlets become very territorial during the breeding period and respond strongly to each other's calls, January was selected as the best month for a survey. In January to February 2000, a survey was conducted, primarily by FI, at known sites and in potential areas of habitat of the Forest Owlet. The major objective was to get information on the range and the quality and extent of the habitat of the Forest Owlet in areas judged likely to hold the species on the basis of recent studies. This paper provides a summary of the findings.

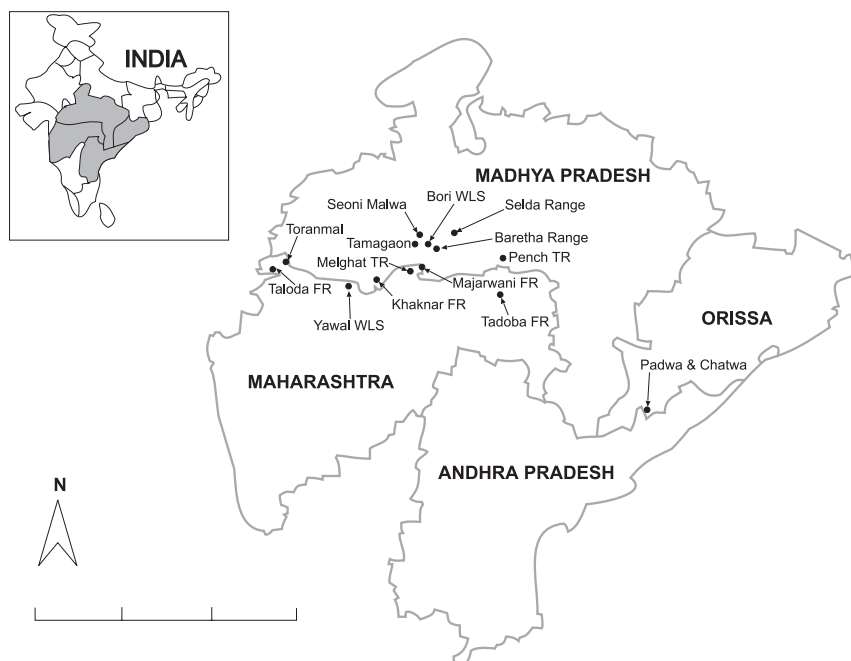


Figure 1. Map of study area

METHODS

Survey sites

We started the survey from our intensive study sites in Toranmal forest range in Shahada to establish the location of the pairs that had already been studied and gather information on nests. Deciduous forests of the central Indian highlands were surveyed (Fig. 1). This deciduous forest belt traverses four states in India: Maharashtra, Madhya Pradesh, Orissa and Andhra Pradesh. The following forests were selected for the survey as the only major tracts remaining in the Satpura range: Shahada in Maharashtra, Pal forest range on the Maharashtra/Madhya Pradesh border; Burhanpur, Betul, Hoshangabad and Bastar in Madhya Pradesh; and Sambalpur range in Orissa. Chatwa and Padwa forests, on the border of Andhra Pradesh, from where a specimen of the Forest Owlet was reported by K. S. R. Krishna Raju (verbally 1999), were also visited. This specimen was donated to the BNHS, and later sent to the Natural History Museum, UK, for comparison with the four Forest Owlet specimens held there.

Survey methods

The surveys were undertaken between 28 January and 22 February 2000. During this time, the survey team visited key habitats and made one or more day trips to potential forested areas. Pre-recorded song and territorial calls of the Forest Owlet were played at various elevations at distances of 500 to 600 m apart. The playback sites were selected on the basis of the habitat and, since the forests were hilly and generally densely vegetated, the transects were located along forest tracks; five or six transects were covered in each forest. Usually the calls were played in the morning and in the evening. The calls were played for 2–3 minutes and then 10 minutes were spent listening for a response. Notes on the habitat type and elevation were taken at all sites.

RESULTS

Toranmal forest range

The survey started from Toranmal forest range, our previous intensive study site (June 1998 to 1999), where four pairs had been found. On the morning of 29 January 2000, the team arrived at the rediscovery site at 06h45 to relocate the roadside pair that had nested there in 1998. The *oh..oh* call (song call) was heard once and a search for the pair commenced. At 07h45, a female's *keek...keek* (begging call) was heard. Later it was found perched on a teak tree *Tectona grandis* at 7–8 m height, facing the sun and flicking its tail. At 07h55, the male came to a nearby tall tree and gave a screech call for two minutes, and later both flew off to forage. The pair was followed as they searched the ground for prey at perch heights of 3 to 4 m. At 09h25, the female successfully caught a skink and ate it immediately. She then started searching for food again. The male flew to a cavity in a roadside *Soymida febrifuga* tree, in which a pair (probably the same pair) nested last year. He remained perched for a few minutes and then flew back to the teak tree and subsequently vanished in the forest, screeching as he went. These observations suggested that

the pair was perhaps in search of a suitable nesting site. The female remained perched on the teak tree in the shade until 11h20 and then she flew into the forest and could not be relocated.

In the afternoon at 15h00, the team went to search for the second pair near Umrapani village. At 15h45 one Forest Owlet was seen flying to a teak tree. It had probably been roosting there and was perhaps disturbed by the sound of our walking over dried leaves. It remained perched at 7 m in shade with its eyes closed and then, at 16h30, a *kee..yah* call was heard, made probably by the male. At 17h30 the male flew towards the female and mated with her. He subsequently flew off to forage, while the female remained perched for another hour before flying into the forest.

On the morning of 30 January, the team went to an area near Kothbani village, to search for a pair that had been discovered in 1999. At 07h20 the screech of a Forest Owlet was heard distantly and it transpired that this came from a pair, probably the same one as in the previous year, which had moved up the hillside, perhaps because the villagers had burned the ground cover in the area. After 20 minutes, whilst these birds were still in view, we heard and saw another Forest Owlet pair perched on a tall tree and screeching. In the meantime the *oh..oh* call was heard more than 12 times from a different direction (a second pair). The call was followed but, after a few minutes, the bird stopped calling. A Forest Owlet was found perched on a teak tree close by, flicking its tail. This pair, which flew off after a few minutes, was almost 500 m from the previous two pairs. A short distance away the slow *keek* call of a female was heard from a teak tree, and this proved to be from the fourth pair in the Kothbani area. On following the call, the female was found perched on a teak tree and the male was heard giving an alarm call at a soaring White-eyed Buzzard *Butastur teesa*. The female was disturbed by people and flew off and, subsequently, only a Spotted Owlet *Athene brama* could be found.

In the evening, we went to another site where a pair had been located in 1999. At 17h30, a Forest Owlet was seen flying to a teak tree and then perched there for an hour, whilst another was seen foraging. The pair was still searching for food when it became dark.

During this two-day trip, we were able to locate three more new pairs, and four of the pairs found in 1999. There was no understorey or ground cover in the area, but there was a thick accumulation of litter in the form of teak leaves on the ground. The forest was mainly dominated by teak plantations and *Boswellia serrata*, *Bombax ceiba*, *Lagerstroemia parvifolia*, *Lannea grandis*, interspersed with *Cymbopogon martini* and other grass species, and lies in the tropical dry deciduous forest zone. The area was facing a serious drought, the worst for at least 25 years.

Yawal Wildlife Sanctuary

On 31 January we travelled to Pal forest range to survey Yawal Wildlife Sanctuary (21°16'N 75°53'E). Pal is a continuation of the Chopra forest range that was surveyed in June 1998 (Ishtiaq 1998). On 1 February, the survey of Yawal was initiated and calls were played. The forest was initially dominated by *Hardwickia binata* and then, further on, by young teak trees. As we moved towards Langadia Amba forest, the teak density was high

and was mixed with bamboo. We did not locate any owlets in this sanctuary.

Khaknar forest range

On 2 February, we moved on to Burhanpur, where we enquired about the quality of the habitat from the forest department, and then went to the Khaknar forest range in Madhya Pradesh. The habitat was quite similar to that in Shahada and Taloda forest ranges. We surveyed the whole area in the afternoon and played calls in the evening at three spots in promising habitats but got no response. On 3 February, we went to a different area, in Bandar Ghati (21°16'N 76°35'E) at 461 m elevation, and played calls at 07h45. Whilst the recorded calls were still playing a male responded from a nearby hillock. It gave its territorial call repeatedly for 10 minutes, when another pair started giving similar calls from elsewhere in the forest. Another bird, probably a male, flew towards the first pair at 08h00 and remained calling for a while; subsequently both birds of this second pair moved to a position close to the first pair. The second male made a pass over the head of the original male and then flew back to his perch while both birds made territorial calls. During the intensive study in 1999, it was noted in at least three pairs that males were the first to respond to playback, while the females subsequently joined them in making territorial calls. At 08h15 the first male stopped calling but remained perched on the teak tree. We watched the bird until it disappeared in the forest. The call was played at 15 spots at different elevations but no more Forest Owlets were located (see Appendix). Above 630 m the habitat became dense and thick with bamboo. Next morning, Nepa Nagar Forest Range, which had some level areas covered with teak plantations, was surveyed but no birds were located.

Melghat Tiger Reserve

On 5 February, we surveyed the forested areas around Raipur village, in Melghat Tiger Reserve. At 06h30 we walked from Chikkaldam Nalah through a forest patch covering a plateau at 600 m (21°34'N 77°07'E). At 09h25, an owl was seen flying from a teak tree, probably disturbed by us. The moment it perched, it was identified as a Forest Owlet. It remained there in full sunlight for 20 minutes, preening and looking around, and it then flew to a bamboo patch, scanning the ground as if in search of food. The adjoining areas of the plateau were thinly covered with *Lannea grandis*, *Boswellia serrata* and *Lagerstroemia parvifolia*. The habitat was very similar to that in Shahada and Taloda reserve forests. We subsequently surveyed the high altitude areas of Melghat up to 1,100 m but did not locate any more Forest Owlets.

Majarwani forest range

On 6 February, we arrived at Bhainsdesi village on the way to Betul district in Madhya Pradesh. Bhainsdesi had some good patches of teak forest. We surveyed the Majarwani forest range but did not locate any Forest Owlets; then we moved to Chopni forest (21°43'N 77°33'E), which was comparatively better habitat than at Majarwani but was still disturbed, thin and patchy due to villages. The call was played at several points without any response.

Baretha range

Betul range has a total area of 1,912 km² with much good teak forest. There are two major divisions under Betul: Shahpur division, which covers Sarani and Barabatur ranges, and Bhoura division, covering Bhoura, Baretha and Gawasen ranges. All of these ranges are very large in area and mostly inaccessible by vehicle. After discussions with the forest department about the habitat, we surveyed the Baretha range (21°06'N 77°54'E) on 8 February, commencing at 07h00. The thick forest was of teak, mixed with *Lagerstroemia parvifolia* and *Boswellia serrata*. The call was played from 567 m to 714 m at five different spots 300 m apart but there was no response (see Appendix).

In the afternoon we went to Selda forest (22°10'N 77°42'E) in Sarani range. The area looked promising in terms of Forest Owlet habitat, but was greatly disturbed by villagers living in the forest. Next morning, on the way back we tried several spots in Bhoura range (highest point 400 m); the forest was dry with steep rocky slopes and covered with teak litter, which would have facilitated the location of the owls after call playback. Most of the teak trees were young (7 to 8 years old). However, the call was played without any response.

Seoni Malwa

Seoni Malwa is supposed to contain the best forest in the Satpura range. It had dense mixed forest in the Banapura range (22°23'N 77°33'E). We played calls between 450 and 600 m but had no response.

Rahatgaon and Tamagaon range

Rahatgaon and Tamagaon are the forest ranges in Harda district. We surveyed most areas and played calls in potential habitats but did not receive any response.

Bori Wildlife Sanctuary

Bori Wildlife Sanctuary, an area of 482 km², located near the highest and northernmost point in the Satpura range, comprised southern tropical moist deciduous forests. It has a rich bird life with 230 species recorded (Mehta 2000). Tawa Reservoir on the western side of the sanctuary attracts a large number of aquatic birds. We surveyed the whole area from Bori to Churna but the forest was generally too thick for Forest Owlets. The call was played at a few places in open habitats but we did not get any response (see Appendix).

Pench Tiger Reserve

We went to Pench (21°47'N 79°19'E) to investigate the report of a Forest Owlet by M. K. S. Pasha of the Wildlife Institute of India (verbally 1999). From Seoni district we passed through two villages, Badalpura and Vijayapani, where the owl had possibly been seen. These were typical villages with mango *Mangifera indica* and neem *Azadirachta indica* trees. In the evening, we drove down to Pench (highest point 400 m) and played calls at various places but did not locate any Forest Owlets. The forest was teak mixed with *Lagerstroemia*. The sighting had been reported on a neem tree in the Mansar (21°27'N 79°24'E), a place with a weekly market within a few hundred metres. We went to the spot where it had been reported, but the habitat was very degraded; we tried playing back the call but got no response.

Tadoba Tiger Reserve

We arrived at Tadoba (21°04'N 79°19'E) in the afternoon of 16 February. We played calls at several hilly areas in the reserve and surveyed all potential habitats, but got no response. The result cannot be judged as in any way significant, however, as Forest Owlets are unresponsive after about 10h00 (see Discussion).

Padwa and Chatwa forest

From Bastar in Madhya Pradesh, where the thick teak forest was too dense for Forest Owlets, we drove for two days to Padwa and Chatwa forests on the border of Andhra Pradesh and Orissa, in Koraput district. There used to be good forest, about 60 to 70 years ago, but the area had become dry, rocky, undulating country with red soil and hardly any forest cover, except eucalyptus plantations; it was dominated by tribal communities. There was no chance of finding any Forest Owlets there and Dr N. J. Collar (verbally 2000) confirmed that a juvenile specimen, purportedly of this species, collected from tribal children in that area in April 1999, and sent to BNHS for identification, was in fact a Spotted Owlet.

Taloda reserve forest

Three pairs of the Forest Owlet, of which one was nesting, were discovered during the 1998 to 1999 studies in Taloda forest, in Mewasi forest division (Ishtiaq 1999). We lacked time to survey this site again during the present survey but the details from March 1999 are included in the results of the present survey (Appendix).

breeding, the female would return to the nest. This behaviour was noted in at least four pairs in Shahada in 1999. Playback was tried during the afternoon, but there was never any response.

No Forest Owlets were found in some areas that had potential habitat. This may have been due to human disturbance, as tribal peoples inhabit most of the reserve forests, or it may have been because of thick ground vegetation, which would be difficult for the owlets to hunt in; at Tadoba it may have been simply the wrong time of day. The one-year study showed that the owlets usually foraged in open areas with sparse vegetation (FI pers. obs.). The forests in Betul and Bastar had high tree densities compared to those in Shahada or at the owlet site in Melghat. Owing to encroachment of forest land by local tribes for cultivation and settlement, the forest has become patchy and degraded, which has led to the scattered distribution of the species, despite the fact that similar patches of forest are available at several sites. This species is naturally very local, as proved by the fact that only seven specimens were ever collected, a much smaller number than for any other species from the main part of India. The lack of contact with the species at potential sites covered in this survey should not be considered as confirming absence as it is possible that it was present at some sites but was not detected because of the time constraints of this short survey. All of the surveyed forests occupy extensive hilly and undulating terrain, and it is likely that the playback calls would not have elicited responses from birds away from the tracks in the forests.

DISCUSSION

The survey was useful in helping determine the extent of deciduous forest and potential Forest Owlet habitat in the central belt of India. We lacked time to visit areas near the Surat Dangs and at Basna Phuljar (Madhya Pradesh), the latter site being the type-locality of the species (Hume 1873). The Melghat Tiger Reserve had been surveyed unsuccessfully by Sálím Ali and S. D. Ripley (Hasan 1976 in Rasmussen and Collar 1998). Surveying at the right time of year and use of call playback were the major reasons for the success in locating Forest Owlets at new sites. Ripley and Ali's failure to find the species in Orissa and Maharashtra can be attributed to the fact that they were playing Spotted Owlet calls (Ripley 1976, Ali 1978).

It has now been established that January to February is the peak breeding time for the species (FI pers. obs.) and, as the birds are known to be very responsive to calls, the use of playback has to be strictly controlled. Too much playback, or playing at too loud a volume, could possibly cause a pair to desert their territory. The playback used during the survey was a mixture of song and territorial calls, recorded previously in Shahada, which may have helped to obtain a quick response from the birds. The playback solely of song or territorial calls has proved to be rather ineffective, as noted in 1999 in Shahada, while studying the behaviour of the species.

The early morning, from 06h00–10h00 was a good time to get a response from the owlets, as they usually remained very active during this period. After 10h00, the owlets went to roost in the shade and, during

FUTURE SURVEYS

Before its rediscovery in late November 1997, the Forest Owlet had been categorized as Critically Endangered (Collar *et al.* 1994). Our survey supports this status assessment and has established that habitat fragmentation is leading to a more patchy distribution, hence making the species more vulnerable. It is clear that more intensive surveys are required in future. The present survey was useful in determining the presence and the extent of potential deciduous forest habitat in central India. It is recommended that the following areas should be searched thoroughly for the species and potential habitat: Basna Phuljar, Gomardah Wildlife Sanctuary, Churabhati and Sirpur, all in Madhya Pradesh, and the Surat Dangs and Vansda National Park in Gujarat. The first three of these areas were searched briefly in November 1997 (King *et al.* 1998, Rasmussen 1998), but without the benefit of tape recordings. There was not time during this survey to visit these localities.

Future surveys of the Forest Owlet should be carried out to estimate the population at localities where it has been recorded previously. The best time to conduct these surveys would be during the breeding season. The species has a prolonged breeding season that commences in October and ends in May, but the best time to search for it would be during January to February. However, population surveys at different seasons are also required to help determine the year-round responsiveness of the species to call playback.

Regular monitoring of the species is important to determine whether it undertakes any seasonal

movements and to quantify pressures on the habitats. A complete study of the ecological requirements of the Forest Owlet is needed as soon as possible so that a better conservation strategy can be developed.

We owe sincere thanks to the Oriental Bird Club (OBC) for funding this one-month survey under a small grant. The study of 1998-1999 was sponsored by the Smithsonian Institution. We are thankful to the State Forest Departments of Maharashtra, Madhya Pradesh, Orissa and Andhra Pradesh for support and help extended during the survey. Our thanks are due to the Bombay Natural History Society, especially Mr J. C. Daniel, Hon. Secretary, and Mr Naresh Chaturvedi, Curator, for help and co-operation. Last but not least, we are thankful to Mr Mehboob Alam and Ms Lavanya Saxena for accompanying us during the survey.

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APPENDIX

Sites visited during Forest Owlet *Athene blewitti* surveys, March 1999 and January-February 2000

Locality	Date	Number	Sex	Activity	Elevation (m)	Playback
Taloda FR						
21°40'N 74°12'E*	26 Mar. 1999	2	Pair	Nesting	446	Call played
21°38'N 74°12'E*	26 Mar. 1999	2	Pair	Calling	442	Call played
21°38'N 74°12'E*	26 Mar. 1999	2	Pair	Calling	442	Call played
Toranmal FR						
21°47'N 74°28'E*	29 Jan. 2000	2	Pair	Roosting	514	No call played
21°47'N 74°28'E*	29 Jan. 2000	2	Pair	Foraging	494	No call played
21°47'N 74°28'E*	30 Jan. 2000	2	Pair	Calling	448	No call played
21°47'N 74°28'E*	30 Jan. 2000	2	Pair	Calling	461	No call played
21°49'N 74°28'E	30 Jan. 2000	2	Pair	Calling	477	No call played
21°49'N 74°28'E	30 Jan. 2000	2	Pair	Calling	464	No call played
21°49'N 74°28'E	30 Jan. 2000	2	Pair	Calling	411	No call played
Yawal WLS						
21°16'N 75°53'E	1 Feb. 2000	-	-	-	436	No response
21°22'N 75°49'E	1 Feb. 2000	-	-	-	507	No response
21°22'N 75°47'E	1 Feb. 2000	-	-	-	566	No response
21°22'N 75°44'E	1 Feb. 2000	-	-	-	700	No response
21°22'N 75°43'E	1 Feb. 2000	-	-	-	779	No response
21°21'N 75°41'E	1 Feb. 2000	-	-	-	749	No response
21°21'N 75°37'E	1 Feb. 2000	-	-	-	710	No response
21°21'N 75°37'E	1 Feb. 2000	-	-	-	702	No response
21°21'N 75°36'E	1 Feb. 2000	-	-	-	686	No response
21°21'N 75°36'E	1 Feb. 2000	-	-	-	729	No response

Khaknar FR						
21°23'N 76°32'E	2 Feb. 2000	-	-	-	315	No response
21°23'N 76°32'E	2 Feb. 2000	-	-	-	310	No response
21°23'N 76°32'E	2 Feb. 2000	-	-	-	300	No response
21°16'N 76°35'E	3 Feb. 2000	-	-	-	387	No response
21°16'N 76°35'E	3 Feb. 2000	4	2 pairs	Calling	364	Call played
21°16'N 76°36'E	3 Feb. 2000	-	-	-	500	No response
21°16'N 76°36'E	3 Feb. 2000	-	-	-	418	No response
21°16'N 76°37'E	3 Feb. 2000	-	-	-	400	No response
21°15'N 76°37'E	3 Feb. 2000	-	-	-	533	No response
21°15'N 76°37'E	3 Feb. 2000	-	-	-	534	No response
21°14'N 76°37'E	3 Feb. 2000	-	-	-	630	No response
21°15'N 76°33'E	3 Feb. 2000	-	-	-	394	No response
21°15'N 76°29'E	3 Feb. 2000	-	-	-	400	No response
21°14'N 76°31'E	3 Feb. 2000	-	-	-	400	No response
21°26'N 76°20'E	4 Feb. 2000	-	-	-	289	No response
Melghat TR						
21°34'N 77°17'E	5 Feb. 2000	1	Male	Foraging	600	No call played
Majarwani FR						
21°43'N 77°33'E	6 Feb. 2000	-	-	-	324	No response
Baretha Range						
22°06'N 77°54'E	8 Feb. 2000	-	-	-	634	No response
22°06'N 77°54'E	8 Feb. 2000	-	-	-	567	No response
22°06'N 77°54'E	8 Feb. 2000	-	-	-	625	No response
22°06'N 77°54'E	8 Feb. 2000	-	-	-	714	No response
22°06'N 77°53'E	8 Feb. 2000	-	-	-	579	No response
Selda Range						
22°10'N 77°42'E	8 Feb. 2000	-	-	-	532	No response
22°09'N 77°43'E	8 Feb. 2000	-	-	-	457	No response
22°12'N 77°39'E	9 Feb. 2000	-	-	-	576	No response
Seoni Malwa						
22°23'N 77°33'E	10 Feb. 2000	-	-	-	457	No response
22°23'N 77°34'E	10 Feb. 2000	-	-	-	602	No response
22°21'N 77°37'E	10 Feb. 2000	-	-	-	554	No response
Tamagaon						
22°12'N 77°19'E	11 Feb. 2000	-	-	-	417	No response
22°12'N 77°20'E	11 Feb. 2000	-	-	-	456	No response
22°11'N 77°22'E	11 Feb. 2000	-	-	-	410	No response
22°10'N 77°22'E	11 Feb. 2000	-	-	-	512	No response
Bori WLS						
22°26'N 78°15'E	12 Feb. 2000	-	-	-	365	No response
Pench TR						
21°48'N 79°19'E	15 Feb. 2000	-	-	-	535	No response
21°47'N 79°20'E	15 Feb. 2000	-	-	-	511	No response
21°47'N 79°20'E	15 Feb. 2000	-	-	-	490	No response
21°46'N 79°19'E	15 Feb. 2000	-	-	-	509	No response
21°27'N 79°24'E	15 Feb. 2000	-	-	-	387	No response
Tadoba TR						
21°04'N 79°19'E	17 Feb. 2000	-	-	-	300	No response
Padwa & Chatwa forests						
18°24'N 82°40'E	19 Feb. 2000	-	-	-	900	No call played

Total number of birds 25

*The marked locations were surveyed in 1999 and Forest Owlets were found at all of these places

TR = Tiger Reserve, FR = Forest Range, WLS = Wildlife Sanctuary