

ON THE "LONG CALL" OF THE INDIAN GREAT HORNED OR EAGLE-OWL *BUBO BENGALENSIS* (FRANKLIN)

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Abstract

The "Long call" is a call of intra-specific value (i.e., targeted towards individuals of the same species), and is the characteristic distinguishing call of *Bubo bengalensis*. The rather melodious two-syllabled male call was clearly distinguishable from the shorter, harsher female call. Increased frequency of calling was recorded at dusk by all males and by both sexes during courtship. Males reacted strongly to the calls played in the field and also to human impersonation and this helped in the identification of territories. Very few calls or none at all were recorded from the time incubation began. This call has multiple functions, the motivation depending upon stimulus and endocrinal state in the birds concerned. A cross purpose was evident when it acted both as a distance increasing display (outside the breeding season) and a distance decreasing display (during courtship).

Keywords

Bubo bengalensis, Indian Great Horned Owl, Eagle-Owl, long call

Introduction

The call of the Eurasian Eagle-owl (also known as the Great-horned Owl, Rock-horned Owl and Bengal Eagle Owl) has been described as a "deep, resonant, hollow *bu-bo* (accent on second syllable much prolonged) repeated at intervals; not particularly loud but with a curious penetrating and far carrying quality. This call has also been rendered as "a deep and solemn *dur-goon* or *to-whooot*" (Ali & Ripley, 1969), and "a loud *dur-goon* or *to-whooot*, solemn and deep in tone" (Whistler, 1928).

Until recently this taxon was considered to be a subspecies of the Eurasian Eagle-owl *Bubo bubo* and its vocalizations too were supposed to be identical with the three other subspecies inhabiting the Indian subcontinent (Ali & Ripley, 1969). Recent

examinations have changed this supposition - the DNA and calls are distinct (Anon, 2002; Frost, 2002). Yet, some ambiguity is bound to prevail in popular literature for sometime.

Signalling devices offer special problems where causations and functions are poorly understood. In a previous paper (Ramanujam, 2000) this call was described as the "territorial call"; in the light of new field data, the term has been revised to "long call". This report aims to determine/analyse the causations and functions of this particular call which may help in understanding the dynamics of communicatory behaviour in owls in general and this taxon in particular.

Methods

Area and subjects

The area east of Ousteri Lake (the wintering ground for thousands of migratory waterbirds) has a number of deeply eroded ravines and gullies. This area (11°58'N, 79°46'E) north-west of Pondicherry City, is the centre for rain-fed re-afforestation programmes based in Merveille, Aranya and Hermitage. Field studies centred on the few subjects inhabiting the area: three breeding pairs of Indian Eagle Owls - one pair in the Hermitage area (hereafter referred to as pair/male/female A), one in the Aranya area (referred to as pair/male/female B) and another pair in the Merveille area (referred to as pair/male/female C), and a single territorial male (referred to as male D). During the period of study pairs A and B bred, raising one and two offsprings respectively. Incubation in pair A commenced in the first week of January 2002 and in pair B on 1 March 2002.

Procedure

Bird watching sessions were concurrently held along with ecological field work from 1 July 2001 to 30 June 2002. Following Jim Farrell's method of locating and monitoring *Strix occidentalis* in the USA (Anon, 1991) the tape playback method (of the birds themselves, neighbours and strangers) and human impersonations were used to identify individuals and monitor responses. On the nights and succeeding mornings (dusk to

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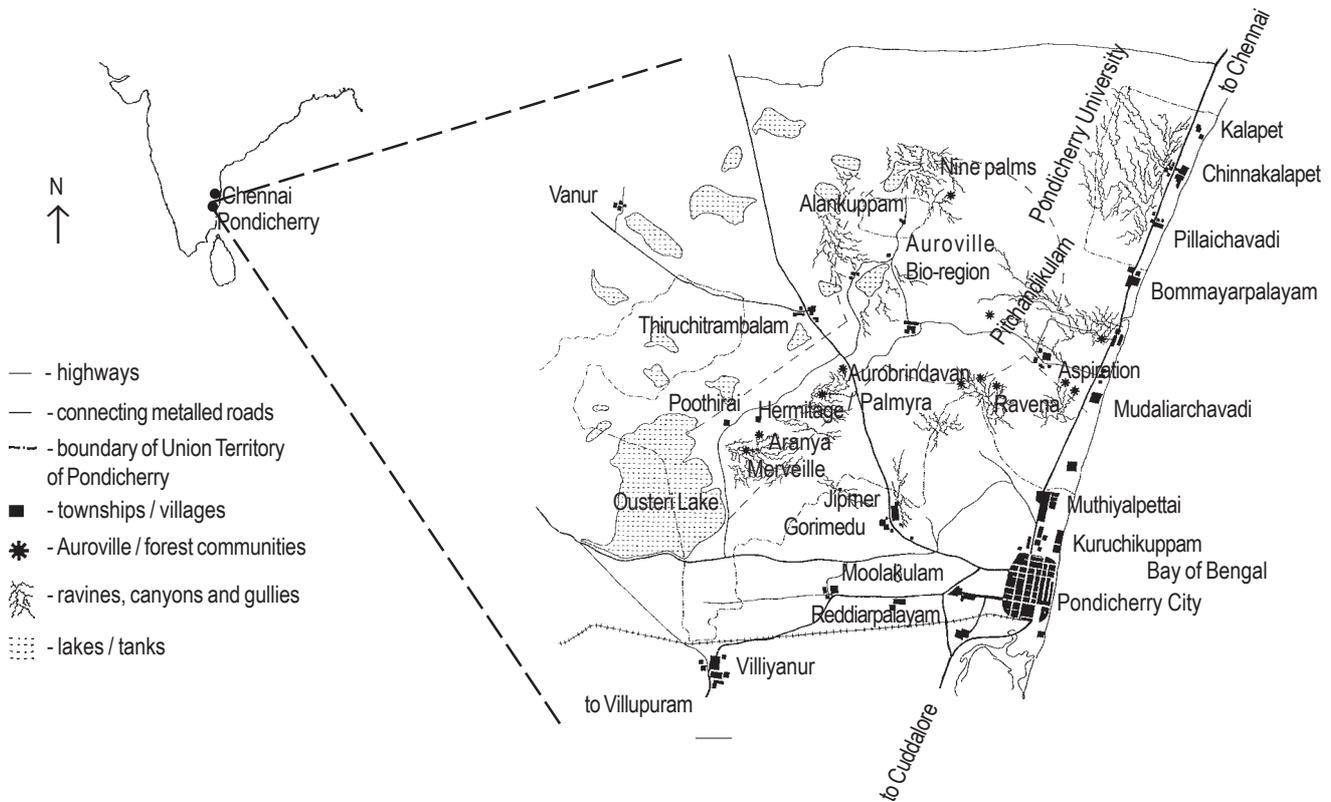


Figure 1. Map showing study sites Aranya and Aspiration

dawn) of the first and fifteenth day every month the frequency and duration of calls of subjects males A, B and D were recorded; the average was calculated and represented in figures 2 and 4. Between 6 and 13 February 2002 courtship behavior was recorded in pair B; the average call frequency of all seven nights is represented in Fig. 3. The territories of all male subjects in the Aranya – Merveille area (i.e., males B, C and D) were determined by plotting the farthest outward calling positions on a map (Fig. 5).

Results

Although the “long call” is characteristic of the Indian Eagle-owl, it shows a marked variation between the sexes – males have rather melodious two syllabled calls, whereas those of the females are a bit shorter and possess a distinct wheezing growl-like undertone. In male B (which allowed an approach of $\leq 10m$) a succeeding soft *kuk-kuk* sound was often discernable after the usual whooping call. In all subjects, both male and female, every time the call was made the gular region was inflated making the white throat patch flash conspicuously, and the tail was raised and lowered.

Outside the breeding season it was employed by the very vocal territorial males and showed a marked increase of frequency at

dusk when the birds emerged from their roosts (Fig. 2). Increased frequency of calling at dawn was noticeable in subject D alone.

Pre-recorded male calls (of the birds themselves, neighbors and strangers), when played in the field, never failed to elicit a response from the males who reacted by calling more frequently and flying closer to investigate. Differential responses – i.e., different responses to the calls of neighbors, strangers, etc. - as is known to exist in other birds (Perrins, 1976; Weeden & Falls, 1959) were not obvious during this study. Curiously, they did not seem to recognize their own voices and reacted as they would to another male. Human impersonations also got the ‘treatment’, though the birds veered away on sighting the observer. They showed no response to the female call. Tape playback surveys and human impersonations also enabled us to definitely mark the territorial boundaries of every single male in the Aranya-Merveille area (Fig. 5). Playing the call in ‘no man’s land’ between territories disclosed the fact that territory holders showed a marked disinclination to leave their pre-established boundaries, though both neighbors would respond vociferously on the edges of their territories. When the calls were played within the birds’ territory, the males responded by flying overhead and making the occasional swooping pass over the tape recorder. However, over a period of time they got rather

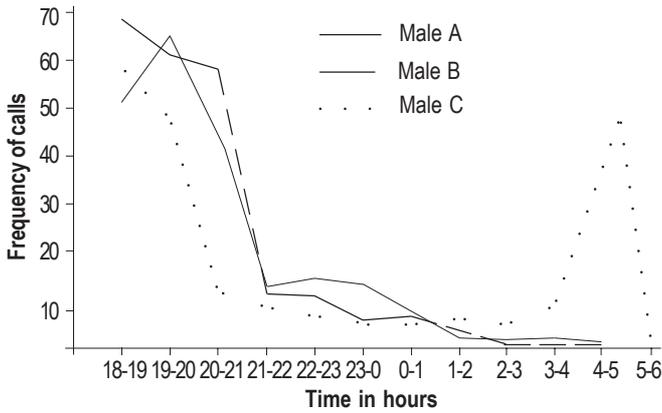


Figure 2. Daily average frequency of calls of three males (July to December 2001 – i.e., the period outside the breeding season). Calls unsolicited by human agency.

blasé to this and ceased to get unduly perturbed - except for subject D who continued to respond at any given time to any type of call and showed a degree of responsiveness to his neighbors' calls -- reduced frequency of calling during the months March to June (Fig. 4).

During the months July to November the sexes lived somewhat solitary lives – i.e., though they occupied the same range in the close vicinity of each other, the female avoided direct contact with the male. At such times the female occasionally advertised

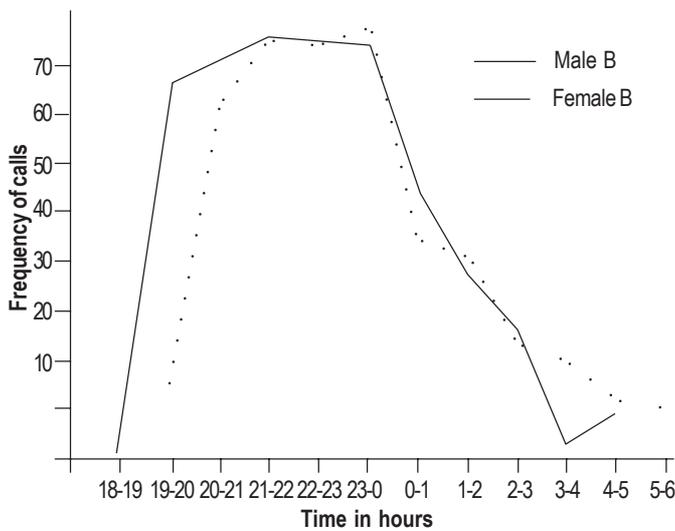
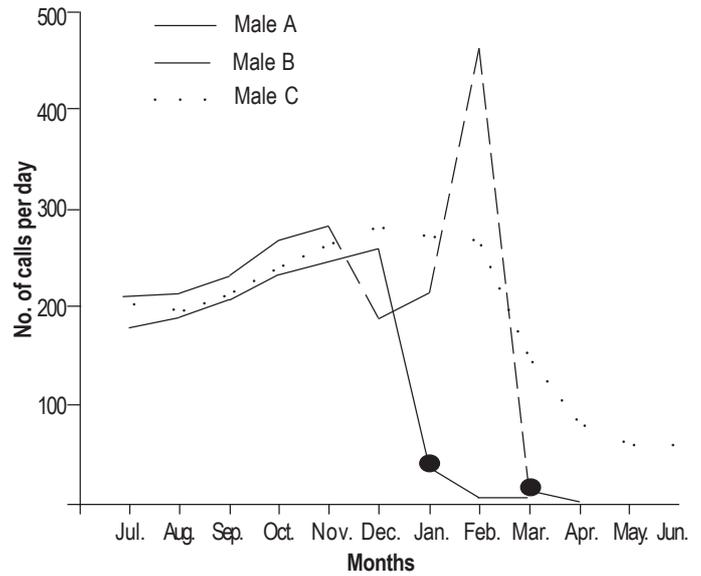


Figure 3. Daily average frequency of calls during the courtship period in pair B (6 – 13 Feb. 2002). Calls unsolicited by human agency.



● Incubation starts

Figure 4. Total average number of calls per day in three males in the months July 2001 – June 2002. Calls unsolicited by human agency.

her position with a long call. If the male persisted in approaching, he was pugnaciously repulsed by the larger female.

During courtship the calls of both sexes in pair B escalated in frequency (Fig. 3). At this time the long call was interspersed with soft, rapidly repeated *who-who-who.....*, *kuk-kuk-krk-krk.....*, throaty growl like hisses and occasional chick-like vocalizations. The birds also spent increased time on the wing, making passes over each other and soaring high in the air. Courtship feeding and mutual preening was also observed.

A strong disinclination to produce the long call was observed in all breeding adults once incubation by the females commenced (Fig. 4).

Discussion

Escalated frequency of calling at dusk has been alluded to in this taxon (Ali, 1969) and is a feature shared by other crepuscular owls - e.g. *Bubo virginianus* (Martin, 1974) and *Athene brama* (Kumar, 1985). As our observations reflect, only males vocalize as such and the calls directed towards other males act as space defence mechanism. The role of calls in defence of territory is a feature shared by a wide variety of birds (Hinde, 1969; Howard, 1920; Nice, 1941; Weeden & Falls, 1959). This characteristic accounted for the birds' reactions to tape playbacks and human impersonations, and is a trait shared by other owl species as well (Anon, 1991; Baker, 2000; King, 1998). The female call also acts in the same way during the months July to November, viz.

to repel the male.

A reversal of function was obvious during courtship when the long call, which hitherto acted as spatial defence had the effect of bringing the sexes together. The escalated frequency of calling in combination with other vocalizations and behavior may have acted as a catalyst. Duetting has been recorded in *Bubo nipalensis* (Wemmer & Derrickson, 1994), but was not observed in this taxon, though the sexes kept calling back and forth which seems to be a feature shared by most, if not all owl species (Austin, 1967).

Hence, it could be said that the long call employed by *Bubo bengalensis* has multiple functions: in the territorial male it is used as a claim to territory and to attract a mate (in this sense it can be termed as 'song'); in the female the occasional use of the call outside the breeding season acts as a distance increaser, but during courtship, depending upon endocrine state, acts as a distance reducer. This leads us to the logical conclusion of biological causation and function, but the rationale for the employment of the same device to cross purposes remains inconclusive.

In conclusion I would like to state that as motivational studies are still at an early stage, and as bird calls by themselves present a number of problems (Hinde, 1969). This report can by no means be considered to have been completed; it should be treated just as an initial descriptive phase.

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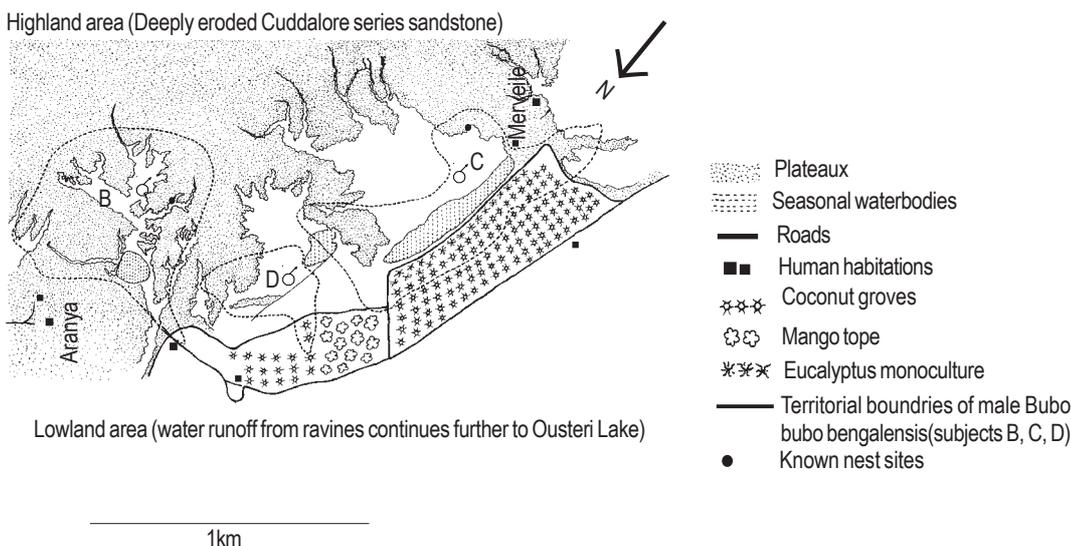


Figure 5. Territories of three male *Bubo bengalensis* in the Aranya – Merveille area. Range identification using pre-recorded calls and human impersonations.