

INTER-SPECIFIC INTIMIDATORY BEHAVIOUR OF ADULT INDIAN EAGLE OWLS *BUBO BENGALENSIS* (FRANKLIN) IN DEFENCE OF THEIR NESTLINGS

Mario Eric Ramanujam

Gratitude Avian Rehabilitation, Auroville, Pondicherry 605101, India.
Email: gratitude@auroville.org.in, aranya@auroville.org.in

Abstract

Intimidatory behaviour in adult *Bubo bengalensis* to human intruders in defence of their nest-bound young was documented in three pairs. This showed a series of distinct behavioural components that differed between the sexes. All these mechanisms had obvious purpose and survival value. However, little or no reactions to human intruders were recorded in one pair - the reasons of which are not discernable.

Keywords

Adult, *Bubo bengalensis*, intimidatory behaviour

Introduction

Selective advantages of owls engaging in displays in defence of their nests has been analysed in general (Armstrong, 1942, 1954) and some species in particular - for example - the Short-eared Owl *Asio flammeus* (Armstrong & Phillips, 1925; Clark, 1975; Dubois, 1923; Saunders, 1913; Urner, 1921, 1923, 1925). Only casual observations are available on the behaviour of this species at the nest (Ali & Ripley, 1969; Vyas, 1996). This report aims to document the entire sequence of displays employed by adult *Bubo bengalensis* in defence of their progeny.

Methods

Seasonal monsoonal torrents draining into Ousteri Lake (11°95'N, 79°73'E) have cut deep fissures into the surrounding red ferrallitic sandy loamy soil (the so called 'Cuddalore Sandstone'). Some of these ravines / canyons / gullies in the Hermitage - Aranya - Merveille region (11°58'N, 79°46'E), contain a wealth of biotic forms - among them resident breeding *Bubo bengalensis*, variously known as the Indian Eagle Owl, Bengal Eagle Owl, Rock Horned Owl and Great Horned Owl.

This study centered around three breeding pairs and their

young: one pair from 3 March to 7 April 2001 in Merveille (hereafter referred to as pair / male / female A), another in Hermitage between 3 March and 11 April 2002 (referred to as pair / male / female B), and a third pair from 5 April to 21 May 2002 in Aranya (referred to as pair / male / female C). Ethograms recorded with a camcorder left a lot to be desired, hence field notes were resorted to. Distances from the nest sites were marked by implanting markers in the soil over every metre for 30m, and responses were correlated to these - thus giving a clear picture of intimidatory behaviour in relation to human distance from the nest.

It must be mentioned that incubating females were given a wide berth for fear that they might desert the eggs.

Results

It was observed that male and female parents reacted differently to humans approaching the nest. A brief description of the individual components in order of occurrence are as follows.

A) The male parent which was not approached directly as it occupied only a vantage point (tall tree) in the vicinity.

Sleeked plumage: A concealing attitude adopted when habitually perched on a tall tree. The feathers were drawn in tightly, giving the birds a sleek look. In spite of the cryptically coloured plumage, all males were mobbed by crows early in the mornings, but this did not seem to trouble them too much.

Alarm call: A soft dog-like bark *Kow* it was audible between 30 and 20m from the nest.

Zig-zag flight: At between 20 and 10m from the nest, the owl approached over a circuitous route, zig-zagging from perch to perch and uttering hisses, beak clicks and alarm calls.

Mobbing: At any time less than 10m the bird attacked by swooping down from its perch and employing its talons to deliver

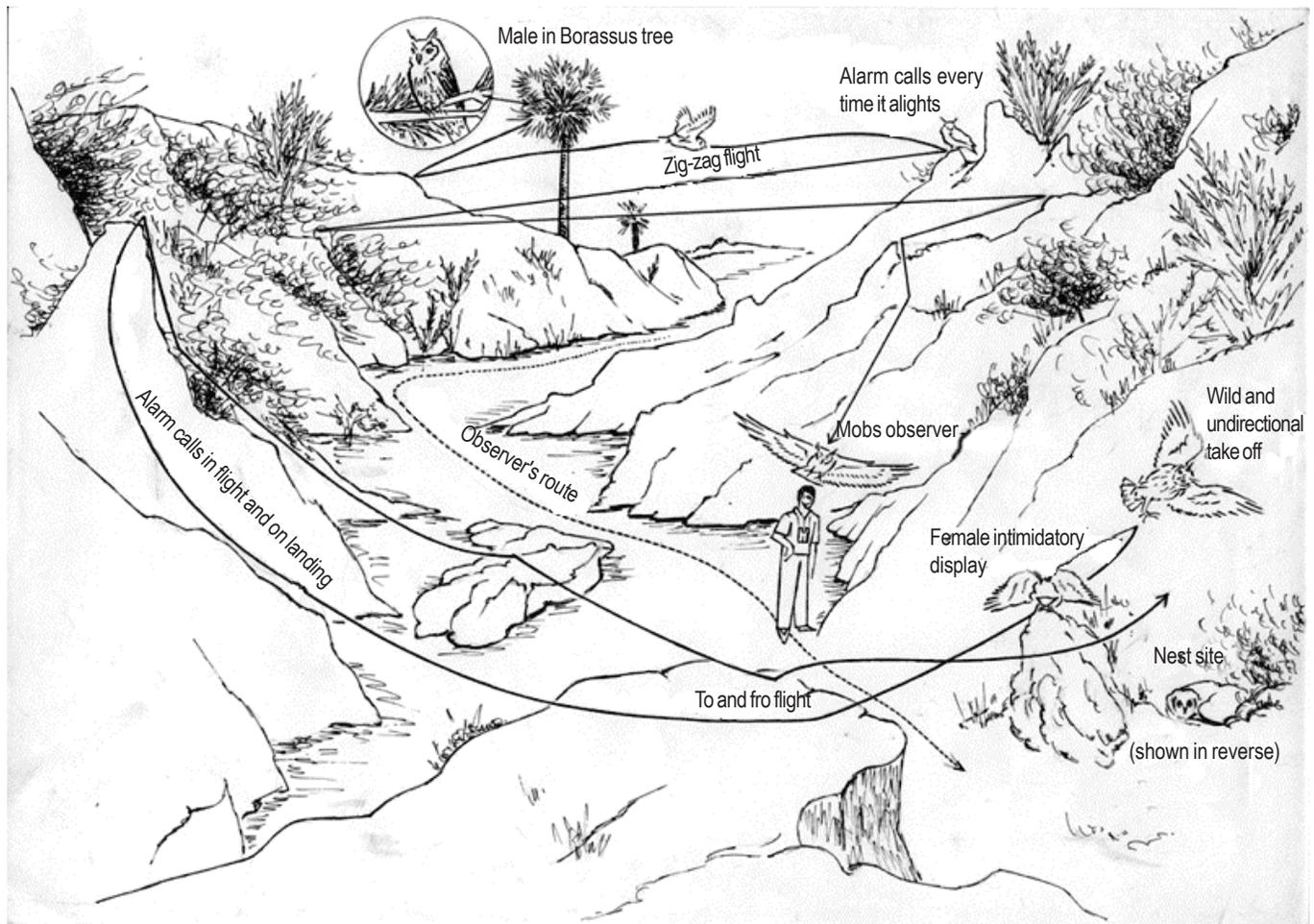


Figure 1. Conceptual representation of the behaviour of adults - subjects: Pair C - in response to observer's approach of their young

a glancing blow from behind. Its long sharp claws can cause some damage as I found out at my cost (Boris, 2002). Afterwards it alighted on a nearby rocky outcrop and remained quite unperturbed in spite of being approached to a distance of <10m.

B) The female parent which was approached directly as it remained on / around the nest :

Sleeked plumage: As in the male a concealing attitude, but adopted when sitting 'cat-like' on the ground, slope or nest. So effective was the camouflage that crows flying overhead never once detected it.

Alarm call: A startlingly loud, harsh *keaou-kak-kak* it was audible at 30m and occurred subsequently when the bird alighted in the vicinity after flying away.

Intimidatory displays: Through a series of transition movements beginning at about 20m. (i.e., slow erection of body plumage, etc.), the full extent when it opened its wings outward was reached at 10m. Loud hissing and bill clicking enhanced the impression of ferocity and large size.

To and fro flight: If the observer insisted on approaching, the bird simply flew away, but kept returning and remained in the vicinity giving its harsh alarm call on and off.

As will be evident from the Table, Pair A showed little reaction. The reason for this is not clear. All other subjects reacted with a set of displays in a fixed order of succession, escalating in intensity from a concealing posture. Transition phases were extremely short - just a fleeting intention movement.

It has been mentioned that "when a nest with chicks is

Table 1. Distance (in m) in relation to behaviour (reactions of both parents) to human approach of the nest site.

Subject	SP	Male			SP	Female		
		AC	ZF	M*		AC	ID	TF**
A	Throughout	-	-	-	>20	-	20 - 10	<10
A	Throughout	-	-	-	>10	-	-	<10
B	>28	28 - 20	20 - 10	<10	>29	29 - 19	19 - 10	<10
B	>27	27 - 19	19 - 10	<10	>29	29 - 20	20 - 9	<9
C	>29	29 - 19	19 - 10	<10	>30	30 - 19	19 - 10	<10
C	>29	29 - 19	19 - 10	<10	>30	30 - 18	18 - 9	<9
C	>29	29 - 19	19 - 10	<10	>30	30 - 18	18 - 10	<10
C	>29	29 - 19	19 - 10	<10	>30	30 - 19	19 - 10	<10
C	>29	29 - 19	19 - 10	<10	>30	30 - 17	17 - 10	<10

SP - Sleeked plumage; AC - alarm call; ZF - zig-zag flight; M - mobbing; ID - intimidatory displays; TF - to and fro flight

* The observer remained in the vicinity of the nest gathering miscellaneous data; ** alarm calling continued whenever the bird alighted between (which usually occurred 10-30m from the nest)

approached, the parents resort to diversionary tactics, feigning wing injury and turning from side to side with their heads down and flapping their wings like a beheaded chicken, squealing at the same time" (Dharmakumarasinghji, 1954). No such behaviour was recorded during the course of this study.

Discussion

Differential responses by the sexes have been reported in other species of owls and it is generally accepted that there is little selective advantage for a female parent to engage in direct combat with a potential predator (Armstrong, 1942, 1954; Clark, 1975). In India, direct attack in defence of the nest and young as observed in *Bubo bengalensis*, has been reported in the Forest Eagle Owl *Bubo nipalensis* which is said to be "very fierce and aggressive in defence of its egg or nest-young" and the Tawny Fish Owl *Ketupa flavipes* in which the female is "said to be very bold and truculent in defence of the nest" (Ali & Ripley, 1969); "less harmful" than other owls is the Spotted Owlet *Athene brama* in which the males are known to attack more frequently (Kumar, 1985).

Hence, it could be concluded that such antagonistic behaviour has definite survival value among owls (and other raptors) and function in keeping away predators. As these birds are all armed with sharp beaks and claws, such attacks could be deleterious to predators. In combination with the intimidatory tactics adopted by the nestlings themselves, such traits have adequate biological significance and survival value.

References

- Ali, S. and Ripley (1969). *Handbook of the Birds of India and Pakistan*. Oxford University Press and the Bombay Natural History Society 3: 273-283.
- Armstrong, E.A. (1942). *Bird Display*. Cambridge University Press, 381pp.
- Armstrong, E.A. (1954). The ecology of distraction display. *British Journal of Animal Behavior* 2: 121-135.
- Armstrong, E.A. and B.W. Phillips (1925). Notes on the nesting of the Short-eared Owl in Yorkshire. *British Birds* 18: 226-230.
- Boris (2002). Interview with an Owl. *Auroville News* 937: 7.
- Clark, J.P. (1975). A field study of the short-eared owl *Asio flammeus* (Pontoppidan) in North America. *Wildlife Monograph* 47: 66.
- Dubois, A.D. (1923). The Short-eared Owl as a foster mother. *The Auk* 40: 385-393.
- Dharmakumarasinghi, R.S. (1954). *The Birds of Saurashtra*. Times of India Press, 561pp.
- Kumar, T.S. (1985). The life history of the Spotted Owlet (*Athene brama brama*, Temminck) in Andhra Pradesh. Monograph of the Raptor Research Institute, Hyderabad, 241pp.
- Saunders, A.A. (1913). Some notes on the nesting of the Short-eared Owl. *Condor* 15: 121-125.
- Urner, C.A. (1921) Short-eared Owl nesting at Elizabeth, New Jersey. *The Auk* 38: 602-603.
- Urner, C.A. (1923). Notes on the Short-eared Owl *Asio flammeus*. *The Auk* 40: 30-36.
- Urner, C.A. (1925). Notes on two ground nesting birds of prey (*Asio flammeus* and *Circus hudsonius*). *The Auk* 42: 31-41.
- Vyas, S. (1996). Checklist of the birds of the Delhi region: an update. *Journal of the Bombay Natural History Society* 93(2): 229.