Nidification of some common Indian Birds. No. 8.* The Shikra, *Accipiter badius* (Gmelin)

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(With 2 Tables)

CONTENTS

I—INTRODUCTION

The Shikra, *Accipiter badius* (Gmelin), is undoubtedly one of the commonest Indian Rapters. It is resident throughout India up to about 1,520 metres in the Himalaya, and is known to breed throughout it range. Inspite of its wide range and abundance very little seems to be known about its breeding habits in India. Hume (1873, pp. 24-25) was, apparently, the first ornithologist ever to collect the data then available on the subject. The information compiled by him dealt mostly with the breeding season ; situation, location, description of nests ; time taken for the construction of nest ; clutch size ; description and measurement of eggs. Many interesting aspects like courtship, mating, territory, nest building, laying pattern, incubation, description of young, care of young and nestling periods, etc., were completely left out presum-

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ably because not much was then known about them. Most of these aspects were omitted not only in his later (Hume, 1890, pp. 119-120), comprehensive collation, but also in Baker's (1935, pp. 103-105) comparatively recent and more elaborate compilation. Although many ornithologists and naturalists (Anderson, 1871, 1875, 1876 ; Marshal, 1877 ; Jerdon, 1877 ; Cripps, 1878 ; Davidson and Wenden, 1878 ; Doig, 1879 ; Vidal, 1880 ; Davidson, 1882 ; Swinhoe and Barnes, 1885 ; Barnes, 1885, 1886, 1888 ; Beavan, 1886 ; Munn, 1894 ; Jesse, 1896 ; 1903 ; Inglis, 1903 ; Whistler, 1910, 1916, 1922, 1928 ; Currie, 1916 ; Donald, 1920 ; Field, 1922 ; Baker, 1928 ; Dewar, 1928, 1929 ; Williams, 1929 ; Baker and Inglis, 1930 ; Phillips, 1933 ; Biddulph, 1937 ; Ali, 1946 ; Aitken, 1947 ; Lowther, 1948, 1949 ; Betts, 1953 ; Hutson, 1954 to mention a few) have, from time to time augmented our knowledge on the subject, yet large lacunae exist in our knowledge of the breeding habits of this bird.

II—Breeding Season

The Shikra has been recorded to breed from January to June in Kerala, January to April (Ali, 1953, p. 316), March to June (Ferguson, 1904, p. 671) , March to April in the rest of South India (Baker and Inglis, 1930, p. 265 ; Biddulph, 1937, p. 406 ; Betts, 1953, p. 250), March to August in Ceylon (Henry, 1955, p. 227 ; Legge, 1880, p. 25 ; Waite, 1925, p. 283), March to May in Western India and Deccan (Barnes, 1888, p. 287 ; Davidson and Wenden, 1878, p. 73 ; Vidal, 1880, p. 30), March to May in Eastern India and Burma (Cripps, 1878, p. 343 ; Inglis, 1903, p. 559 ; Munn, 1894, p. 62 ; Oates, 1883, p. 179 ; Smythies, 1940, p. 349), April to May in Uttar Pradesh and Rajasthan (Anderson, 1871, p. 682 ; Barnes, 1886, p. 39 ; Jesse, 1903, p. 77 ; Ried, 1881, p. 6), and April to July in Delhi and Punjab (Currie, 1916, p. 572 ; Donald, 1920, p. 136 ; Field, 1922, p. 766 ; Whistler, 1910, p. 704 ; Huston, 1954, p. 141).

At Hoshiarpur (Punjab), where this study was first undertaken in 1951, nests of this species with eggs and young were located during April to June in the years 1951 and 1952 ; around Poona (Maharashtra) breeding activity was noticed in April and May 1954 and at Vellore (North Arcot, Madras) a few nests were kept under observation in March and April, 1956.

III—Mating

With the approach of breeding season the Shikra, normally a quiet bird, becomes very noisy. Its two-note call can be very frequently heard throughout the day, particularly in the calm of the mornings. The sexes are apparently attracted to each others' calls resulting in pair formation. The paired birds appear to indulge often in a rather peculiar nuptial flight in which the wings are held well above the level of the back, slightly bent and the beats are low and leisurely. The courtship seems to consist chiefly of these nuptial flights and general chasing of each other (mostly male chasing the female) through and around tree tops. The male may sometimes bring in a tidbit like a lizard or a small bird to share with his mate. The copulation is a noisy affair and invariably takes place on branches of trees. The male utters his mating call a number of times in quick succession. The female answers it. The

male then flies up to or advances towards her. On his approach she crouches low, spreads her wings and lowers her head often uttering her mating call. The male mounts her in this position, balancing himself chiefly by flapping his wings, keeps on uttering his mating call intermittently throughout the act. The copulation is most frequent when the nest is under construction and may, during the peak of building activity, take place as frequently as three times in four hours.

IV—NEST BUILDING

After pairing off the birds devote their attention to the task of selecting a suitable site for their nest. The Shikras are apparently very selective about the breeding locality as well as the nesting site. "This little Hawk eschews extremes and never breeds in evergreen humid forests or, on the other hand, in actual deserts or the driest areas such as occur in Rajputana and elsewhere. It frequents for preference well-wooded country, both cultivated and waste land and it ascends the hills in suitable places upto about 5,000 ft. or rather higher" (Baker, 1935, p. 103). A well screened, three—or more pronged fork in a shady tree of a considerable size gets the first preference as the site select. Such a site is invariably provided by the sideways and upwards radiating branches of the parasitic shrub (*Loranthus* spp.) which often grows on sizeable trees. Such sites have often been recorded by the previous workers (Anderson, 1875, p. 19 ; Field, 1922, p. 766 ; Inglis, 1903, p. 559) also. In the absence of such a coveted fork, any well-concealed fork near the top or on the outside of a large shady tree growing solitary or in a grove, in a garden, on the outskirts of villages or in open deciduous forest is made use of. Exposed forks and forks offered by palm leaf bases are also occasionally occupied in the absence of something better. With such a flexible range of requirement, obviously the birds do not experience much difficulty in securing an appropriate nesting site. After having selected the site they do not exhibit much hurry or anxiety towards starting the construction of the nest. They usually hang around for a few days indulging in their conspicuous and noisy love-making thereby announcing their intentions to all and sundry. Even when they decide to go ahead with the construction they do not exhibit much enthusiasm or industry. Both partners collect the nesting materials in their own leisurely fashion, managing between themselves a few twigs a day. Normally dry twigs are wrenched off dead trees or branches with the beak. If the dry ones are not easily available the green ones are broken off. During transportation to the nest the bigger or the heavier twigs are transfered to the talons where as the smaller ones are carried in the beak itself. The female appears comparatively more concerned about the progress of nest construction. She not only makes greater number of material collecting trips but also does the major part of construction work. The male normally passes on his contribution of twigs to the female if she happens to be at work in the nest. In her absence he may try his hand (rather beak and breast) at the construction. The female, the chief architect, shows great hesitation while fixing a twig, often changing its position a number of times. There are long intervals of rest, love-making and food hunting in between the spurts of building activity. In the beginning the twigs are deposited in the fork in a haphazard manner. When the pile is about 7—10 cm. high the female starts applying her breast to shape the

egg cavity. Hume (1873, p. 24) and many of the subsequent workers have recorded the Shikra to take upwards of a month to complete a nest. Six pairs observed during the course of this study took 15-25 days to complete their nests.

The finished nest resembles that of a House Crow (*see* Lamba, 1963, pp. 124-126 for description of House Crow's nest) and is, generally speaking a shallow cup, 18-24 cm. in diameter and 8-12 cm. deep made of twigs roughly and loosely put together ; the egg chamber is 8-10 cm. across and 6-8 cm. in depth, occasionally lined with grass blades and roots.

At times a pair of Shikras may decide to skip the drudgery of making a nest of their own and may utilise an old or abandoned nest of other birds. Baker (1935, pp. 103-104) records Benjamin Aitken having taken a clutch of Shikras' eggs from an old crow's nest. Lowther (1944, pp.5-6) noticed a pair of Shikras in occupation of a nest made entirely out of pieces of wire (obviously an old and abandoned nest of House Crow), Hutson (1954, p. 141) found a pair of Shikras in occupation of a nest built and deserted by a pair of Honey Buzzards.

V—Territory

Each pair of nesting Shikras appears to have a well defined territory. It is rare to find two pairs nesting within a mile of each other. Apparently the territorial claims of others of the species are well respected. No special territory announcing call or note was noticed, presumably the loud mating calls serve this purpose. Smaller birds in the vicinity of the nesting tree are greatly alarmed in the beginning but gradually get used to their presence and may even venture to visit the nesting tree itself. Drongos and crows, if nesting in vicinity, put up a stiff resistance towards the establishment of Shikra's claim and may at times (especially when the Shikras have not started the construction of the nest), even succeed in chasing the Shikras out of a fancied site. Crows, tree-pies and similar other egg-and-young stealers usually keep clear of the Shikra's nest. Any impudent ones that dare approach the nest are obliged to beat an hasty retreat as a result of the hot chase given by one or both of the owners. Even larger raptors do not appear to bother these little brave ones

VI—Laying and Clutch Size

Laying may start as soon as the nest is complete or there may be a gap of a couple of days between the cessation of the building activity and the laying of the first egg. The subsequent eggs are laid at intervals of forty-eight hours (Table 1). No particular time of the day appears to be preferred for laying. The normal clutch consists of three to four eggs. Bigger clutches of five have also been recorded (Anderson, 1876, p.780 ; Whistler, 1910, p. 704 ; Lowther, 1944, p. 6).

The eggs are broad ovals, slightly pointed at one end. The texture is fine and smooth. They are devoid of gloss. They are very faint bluish white in colour. No marked eggs were met with during the course of this study, but speckled, spotted and partially or fully blotched eggs clutches have often been recorded by previous workers ["freely marked with minute specks of reddish brown" (Anderson, 1876, p. 780) ; "lightly speckled at larger end with blackish pin-pricks or with rather larger sub-shell blotches of pale grey or lavendar" (Baker, 1935, p. 104) ; "indistinctly spotted with very faint grey" (Barnes, 1885, p. 23) ; "few small greyish specks and spots" (Donald, 1920, p. 136) ; "thinly sprinkled all over with very faint greyish specks and spots" (Hume, 1890, p. 121); "much blotched with reddish brown" (Jerdon, 1877, p. 50); "slightly marked with large faint blotches of brownish yellow" (Jesse, 1903, p. 77); "very faint bluish spots" (Swinhoe & Barnes, 1875, p. 56) ; "slightly speckled with grey, (Whistler, 1928, *p.* 291)]. Twenty-one eggs measured 38-40 cm. (average 39·6 cm.)×30-32 cm. (average 31·8 cm.).

VII—INCUBATION

1. *General*

The female starts sitting as soon as the first egg is laid. She alone appears to do all the incubation. In the beginning she is a loose sitter and may often be found missing from the nest though always present somewhere in the vicinity keeping a watchful eye. During the night she alone covers the clutch, the male roosting in the nesting-tree or in an adjoining one. As the incubation advances she spends most of her time in the nest. Food is invariably brought to her by her mate who alights on a near by branch or tree with food, calls her and flies away after passing the food on to her.

The Shikra is a brave bird as a rule. It tries to put up a gallant defence when the eggs (or young) are threatened. The owners swoop menacingly on the intruders but seldom inflict injury on human ones. There are, however, some timid exceptions who prefer to desert the nest with eggs rather than swoop on human intruders day after day. On two occasions when full clutches were removed, fresh ones were laid after seven and ten days. Partial loss of a clutch does not induce the birds to lay more eggs to complete the clutch. Once the first egg that was laid in the nest was removed on the same day in the hope to find out the maximum number of eggs that would be laid if the eggs went on thus disappearing, but the female out-manoeuvered the move by refusing to lay any more eggs for the next eight days. On the ninth day she laid again. This time the egg was not removed and she was observed to complete her clutch of four. Once a fresh clutch was laid when the single freshly hatched young was removed from the nest. The youngs were often heard hammering at the shell from within, even twenty-four hours before emergence.

2. *Period of incubation*

By period of incubation, I mean, the time elapsed between the laying of the first egg and appearance of the first hatchling. Although a number

of nests were kept under observation during the study ; the period of incubation could be ascertained only in five cases. In all the five cases it turned out to be eighteen days (Table 1).

TABLE 1.—*Laying pattern and period of incubation.*

Nest No.	1st egg laid on	2nd egg laid on	3rd egg laid on	4th egg laid on	1st nestling hatched on	Period in days
5	May 2	May 6	May 6		May 20	18
7	Apr. 5	Apr. 7	Apr. 9	Apr. 11	Apr. 23	18
8	Apr. 21	Apr. 23	Apr. 25	Apr. 27	May 9	18
12	Mar. 28	Mar. 30	Apr. 1		Apr. 15	18
14	May 7	May 9	May 11	May 13	May 25	18

VIII—YOUNG IN THE NEST

1. *Description, growth and behaviour*

The young can be heard tapping the shell from within about twenty-four hours before the emergence. They hatch out one after the other at intervals of twenty-four to forty-eight hours (usually twenty-four in the case of first two), more or less in the sequence in which they are laid. The freshly hatched young are covered with short white down, comprising of preplumulae and prepinnae, all over the body. The eyes are open and are dark in colour. The tips of beak and claws are black and hard. The freshly hatched young cannot stand on their legs till they are four to five days old. Within a week the down on the dorsal side and head turns buffy. As the young grows the preplumulae and prepinnae are gradually replaced by plumulae and teleoptiles, respectively. The teleoptiles start cutting through the skin by the end of the first week. By the end of the second week the wing quills burst from their sheaths. The teleoptiles appear first on the scapulars, back and tail ; next on the flanks and breast, and finally on the head. The nestling down is more or less completely replaced by teleoptiles by the time nestlings are about a month old. The plumage of the young at this stage is brownish above ; white below boldly streaked with dark brown ; tail brownish and barred. The job of feeding the young is mostly left to the female, the male being mainly engaged in procuring the food, which consists of small birds, mice, lizards, frogs, and the like. Pieces of flesh are torn out by the female and deposited in the gaping mouth of the nestlings. The young are fed at irregular intervals and not very frequently, usually three to five times a day.

About a week old nestlings raise their necks when approached and demand food by opening their mouths, spreading the wings and twittering. They show no sign of fear although the parent utters the warning call every time the nest is threatened. The fear complex appears to set in by the end of the second week. At this stage on hearing the warning call of the parent they instantaneously become alert and try to escape

capture (by the human investigator) by moving out of the nest into the adjoining branches. If caught, they express their resentment by biting. When more than two weeks old the nestlings prefer to sit on the edge of or outside the nest. They can fly small distances when three to four weeks old. The fledglings leave the nest when four to five weeks old but remain in the vicinity of the nesting tree for another fortnight or so. During this time they are usually fed by the parents.

2. *Mortality in the young*

The mortality in the young of Shikra does not appear to be very high. There appear to be two main causes of death, namely, starvation and accidents. In spite of the best efforts of the brave parents enough food is not always provided for the full brood. Deaths due to starvation occur mostly in the first or second week. Usually the nestling last to hatch is the one who meets this fate. Being the youngest and hence the weakest of all the brood, it often fails to receive his rightful share which is devoured by the greedy elders. As a result such a nestling goes on becoming weaker with the passage of each day and finally succumbs to hunger. Occasionally a part of the loose nest may give way resulting in a fatal fall of a nestling or a young nestling may lose balance while moving on the fringes of the flimsy nest and die as a result of the fall. A few deaths due to disease and natural calamities cannot, however, be ruled out. The dead nestlings are thrown out of the nest by the parents. During the present study it was observed that out of twenty-one nestlings that hatched in seven nests four failed to leave the nest alive.

3. *Nesting success*

By nesting success, I mean, the ratio of nestlings that flew out of the nest to the number of eggs laid. The nesting success in the Shikra apparently depends upon a number of factors. The important ones being the fertility of eggs laid, accidents to fledglings, amount of food available at nesting stage and deaths due to disease and natural calamities. In the seven nests kept under observation during the course of this study, twenty-five eggs were laid, four eggs did not hatch out, four nestlings died as a result of starvation and fall, and seventeen flew out of the nest (Table 2). The ratio works out to 68 per cent.

TABLE 2.—*Nesting success.*

Nest No.	Total eggs laid	Eggs not hatched	Total hatch	Fledglings died	Fledglings survived
3	4	1	3	1	2
5	3	—	3	—	3
7	4	1	3	1	2
8	4	—	4	1	3
10	4	1	3	—	3
12	3	—	3	1	2
14	3	1	2	—	2
TOTAL	25	4	21	4	17

17/25=68 per cent.

IX—Summary

Breeding habits of Shikra, *Accipiter badius* (Gmelin) were studied at Hoshiarpur (Punjab), Poona (Maharashtra), and Vellore (North Arcot, Madras). April to June was found to be the main breeding season. The breeding season commences a little early in southern India, *i.e.*, in March, and lasts a little longer in the northern India. A crow-like, loosely put together nest of twigs, occasionally lined with grass or roots is usually made in a well-screened fork (preferably three or more pronged), in a shady tree. Both sexes take part in the construction of the nest, but the female appears to accomplish the major portion. Three or four very faint bluish-white eggs are laid. Female alone incubates. The period of incubation is eighteen days. The nestlings are nidiculous. Female does most of the feeding whereas male does most of the food hunting. The nestlings leave the nest when they are four to five weeks old. Nesting success in seven nests was observed to be 68 per cent.

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