

peninsular India, which Ali and Ripley (1978) refer to as 'stragglers'. This sighting is the second for Karnataka after more than a century; the last published report goes back to 1898 in Karwar (Davidson 1898).

Lesser Kestrel is listed as an endangered species in the BirdLife International Red Data Book on Asian birds (BirdLife International 2001). Ali and Ripley (1978) write for *Falco naumanni*, "Status uncertain. Apparently rare winter visitor; perhaps more correctly as an irregular through passage migrant to E. Africa like the Red-legged Falcon, a few stragglers remaining behind." It has been obtained as thus from several locations in a wide area of north and north-eastern and peninsular India, up to the Nilgiris in the south. It has also been observed in the Maldives (Ali and Ripley 1978). In more recent times, it has been recorded from Corbett National Park, Uttaranchal (Naoroji 1999), Kaziranga National Park, Assam (Barua and Sharma 1999) and Wynaad, Kerala (Zacharias and Gaston 1993) in India, Dera Ismail Khan district in northwest Pakistan (Kylanpaa 2000) and from Sri Lanka (Hoffmann 1996). There is a reliable but unpublished record of the bird from the Biligirirangan Hills in south Karnataka (Srinivasa *et al.*

unpublished). Ali and Ripley (1978) mention *F. amurensis* and *F. naumanni* migrating together. Arjal (1976) records the same from Nepal, and our sighting corroborates it.

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### 13. NATURAL HISTORY NOTES ON CHICKS OF THE NICOBAR MEGAPODE *MEGAPODIUS NICOBARIENSIS*

The Nicobar Megapode *Megapodius nicobariensis* is one of the 22 species of megapodes and is endemic to the Nicobar Islands, India. Megapodes are a unique group of birds as they utilise external sources of heat to incubate their eggs (Jones *et al.* 1995). Superprecocial chicks of megapodes hatch at depths from c. 20 cm to 1 m or more from the incubation site (Jones *et al.* 1995). In order to emerge from the incubation site they must dig to the surface, an action they perform without any assistance from the adult (Frith 1959, Jones *et al.* 1995). The time taken in moving from the level of hatching to the surface varies with depth, the nature and compaction of the substrate, and energy reserves of the individual hatchlings

(Jones *et al.* 1995). Observations of the chicks of the mound building Nicobar Megapode have not been published in detail. This note describes the behaviour of chicks of the Nicobar Megapode.

This study was carried out between December 1995 and May 1998 on Great Nicobar Island (6° 76'-6° 79' N, 93° 81'-93° 84' E). All the mounds in the study area were monitored. When an egg was laid, it was dug out and weighed to the nearest gram using a spring balance. After weighing and marking, the egg was reburied in the same egg chamber and the mound was re-built. To monitor the egg as well as hatchling behaviour inside the mound, glass plates were



placed adjacent to the egg chambers of seven eggs. Here, 'chick' refers to both hatchlings and fledglings, and 'hatchling' refers to a chick working its way out of the egg and up to the surface. Once at the surface and out in the open, it was called a fledgling.

In 1998, a total of seven eggs were monitored. Of these, a longitudinal crack was observed in only three eggs after 65.33 (se  $\pm 1.86$ ) days after egg-laying and approximately ten days prior to hatching. We assumed that the force within the egg might be the reason for the crack and it could be the initial part of the hatching process.

**Activities of hatchling:** The climb of the hatchling from the egg chamber to the surface is a long process (Jones *et al.* 1995). In our study, a chick took up to 83.8 hours (se  $\pm 12.7$ , n=5) to reach the mound surface, which is higher than other mound builders (Jones and Birks 1992). The mean rate of movement was about 1.25 cm per hour (se  $\pm 0.07$ , n=5). Movement of the hatchling was effected by two factors. The breathing of the hatchling resulted in contraction and expansion of the body, which loosened the soil, the legs were then flexed and the hatchling was pushed upwards. The average rate of leg kicks of the hatchling was 2.7 kicks /hour (se  $\pm 0.2$ ).

Chicks invariably left the mound soon after reaching the surface. Successful hatching was indirectly indicated by the hatching holes on incubation mounds with a damp surface. In case of a mound with dry surface, the hatching hole could not be seen due to shifting of sand.

**Activities of fledgling:** A total of 22 chicks were sighted in the study area. Of these 17 chicks were captured and released. As soon as a chick emerged from the mound it preened its body and leg. Once, within seven seconds of emerging, a chick flew 53 m. Another hatchling, as soon as it emerged out from the mound, flew and perched on a branch 73 cm from the ground. Chicks made alarm calls when handled. Locating chicks on the forest floor was difficult, as they camouflaged with the ground. A chick was frightened even on seeing a tree shrew *Tupaia nicobarica*.

**Fate of chick:** All the chicks sighted in the field were on or near the incubation mounds. Although locals reported sighting chicks in the interior forest, we did not see any. Six

dead chicks were seen in the study area. Of these, four hatchlings were seen being eaten by a Nicobar Serpent-Eagle *Spilornis minimus klossi*, Nicobar Sparrowhawk *Accipiter butleri* and hermit crabs *Pagurus* sp.

Of the 17 chicks captured, five had an opaque membrane over the eye that rendered the bird blind, of which we cured three by immersing them in seawater and two died. Considering how alert the chicks are, it is likely that those preyed upon were also born with the eye disorder.

At one mound, an adult bird kicked out an emerging hatchling from the mound while digging a pit. No reaction was noticed between the adult and the fledgling. The fledgling left the mound after a short rest. In another mound, a pair, while digging a pit, kicked out an embryo from the egg chamber. The embryo was not fully developed and hence died.

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